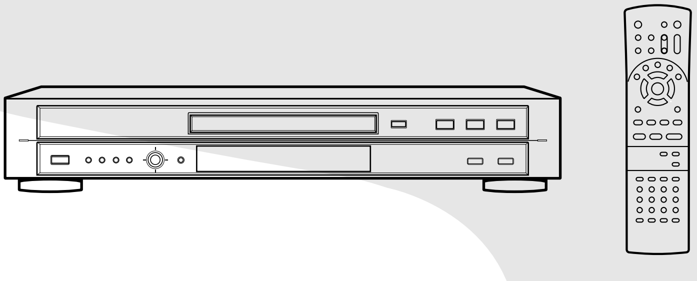
TOSHIBA

FILE NO. 810-200208

SERVICE MANUAL

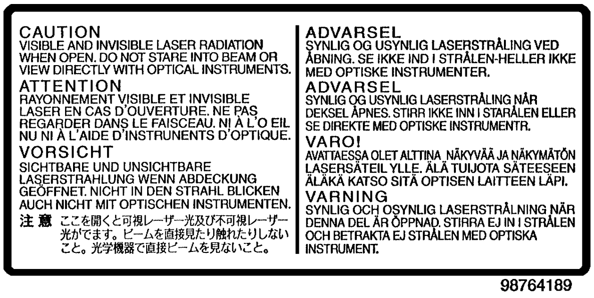
DVD VIDEO/AUDIO PLAYER

SD-520ESE
SD-520EKE
SD-520ESB



Sep., 2002 Ⓢ

LASER BEAM CAUTION LABEL



CAUTION
VISIBLE AND INVISIBLE LASER RADIATION
WHEN OPEN. DO NOT STARE INTO BEAM OR
VIEW DIRECTLY WITH OPTICAL INSTRUMENTS.

ATTENTION
RAYONNEMENT VISIBLE ET INVISIBLE
LASER EN CAS D'OUVERTURE. NE PAS
REGARDER DANS LE FAISCEAU. NI À L'O EIL
NU NI À L'AIDE D'INSTRUNENTS D'OPTIQUE.

VORSICHT
SICHTBARE UND UNSICHTBARE
LASERSTRAHLUNG WENN ABDECKUNG
GEÖFFNET. NICHT IN DEN STRAHL BLICKEN
AUCH NICHT MIT OPTISCHEN INSTRUMENTEN.

注 意　ここを開くと可視レーザー光及び不可視レーザー
光がでます。ビームを直接見たり触れたりしない
こと。光学機器で直接ビームを見ないこと。

ADVARSEL
SYNLIG OG USYNLIG LASERSTRÅLING VED
ÅBNING. SE IKKE IND I STRÅLEN-HELLER IKKE
MED OPTISKE INSTRUMENTER.

ADVARSEL
SYNLIG OG USYNLIG LASERSTRÅLING NÅR
DEKSEL ÅPNES. STIRR IKKE INN I STARÅLEN ELLER
SE DIREKTE MED OPTISKE INSTRUMENTR.

VARO!
AVATTAESSA OLET ALTTINA NÄKYVÄÄ JA NÄKYMÄTÖN
LASERSÄTEIL YLLE. ÄLÄ TUIJOTA SÄTEESEEN
ÄLÄKÄ KATSO SITÄ OPTISEN LAITTEEN LÄPI.

VARNING
SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR
DENNA DEL ÄR ÖPPNAD. STIRRA EJ IN I STRÅLEN
OCH BETRAKTA EJ STRÅLEN MED OPTISKA
INSTRUMENT.

98764189

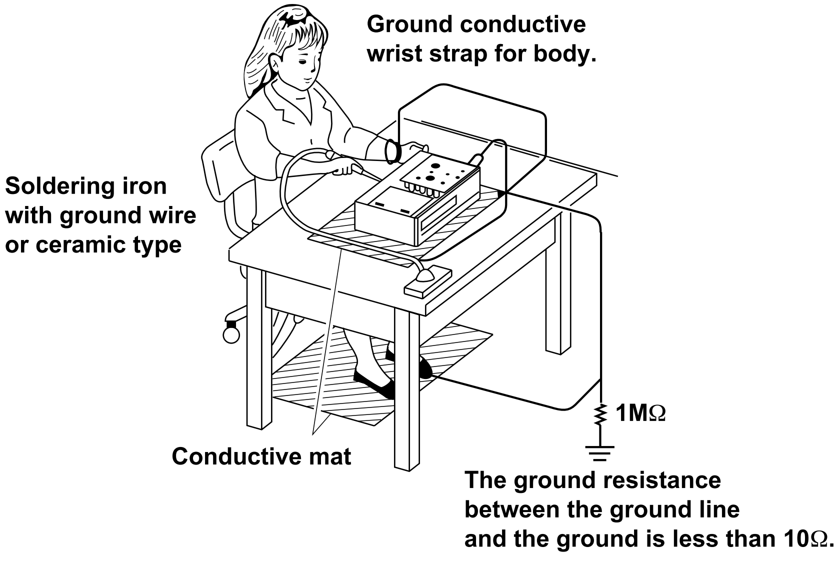
When the power supply is being turned on, you may not remove this laser cautions label. If it removes, radiation of a laser may be received.

PREPARATION OF SERVICING

Pickup Head consists of a laser diode that is very susceptible to external static electricity.

Although it operates properly after replacement, if it was subject to electrostatic discharge during replacement, its life might be shortened. When replacing, use a conductive mat, soldering iron with ground wire, etc. to protect the laser diode from damage by static electricity.

And also, the LSI and IC are same as above.


Ground conductive
wrist strap for body.
Soldering iron
with ground wire
or ceramic type
1MΩ
Conductive mat
The ground resistance
between the ground line
and the ground is less than 10Ω.

CONTENTS

SECTION 1
GENERAL DESCRIPTIONS

1. OPERATING INSTRUCTIONS
   Specifications
2. LOCATION OF MAIN PARTS AND MECHANISM PARTS
   - 2-1. Location of Main Parts
   - 2-2. Location of Mechanism Parts
   - 2-2-1. Type A
   - 2-2-2. Type B
3. TROUBLESHOOTING
   - 3-1. Main Circuit
   - 3-1-1. Servo System
   - 3-1-2. Location Diagram of Servo Test Point

SECTION 2
PART REPLACEMENT AND ADJUSTMENT PROCEDURES

1. REPLACEMENT OF MECHANICAL PARTS (TYPE A)
   - 1-1. Cabinet Replacement
   - 1-1-1. Top Cover
   - 1-1-2. Tray Panel
   - 1-1-3. Front Panel
   - 1-1-4. Tray
   - 1-1-5. Rear Panel
   - 1-2. PC Board Replacement
   - 1-2-1. Main PC Board
   - 1-2-2. Output PC Board
   - 1-2-3. Power PC board
   - 1-2-4. Front PC Board
   - 1-2-5. Output-RGB PC Board
   - 1-3. Mechanism Parts
   - 1-3-1. Mechanism Chassis Assembly
2. REPLACEMENT OF MECHANICAL PARTS (TYPE B)
   - 2-1. Cabinet Replacement
   - 2-1-1. Top Cover
   - 2-1-2. Clamper Stay
   - 2-1-3. Tray Panel
   - 2-1-4. Front Panel and Tray
   - 2-1-5. Rear Panel
   - 2-2. PC Board Replacement
   - 2-2-1. Main PC Board
   - 2-2-2. Output PC Board
   - 2-2-3. Power PC board
   - 2-2-4. Front PC Board
   - 2-2-5. Output-RGB PC Board
   - 2-3. Mechanism Parts
   - 2-3-1. Mechanism Chassis Assembly

SECTION 3
SERVICING DIAGRAMS

1. STANDING PC BOARDS FOR SERVICING
2. CIRCUIT SYMBOLS AND SUPPLEMENTARY EXPLANATION
   - 2-1. Precautions for Part Replacement
   - 2-2. Solid Resistor Indication
   - 2-3. Capacitance Indication
   - 2-4. Inductor Indication
   - 2-5. Waveform and Voltage Measurement
   - 2-6. Others
3. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM
4. BLOCK DIAGRAMS
   - 4-1. Overall Block Diagram
   - 4-2. Power Supply Block Diagram
   - 4-3. Front Display, Power Switch Block Diagram
   - 4-4. Main Block Diagrams
   - 4-5. Output Block Diagrams
5. CIRCUIT DIAGRAMS
   - 5-1. Power Supply Circuit Diagram
   - 5-2. Front Display, Power Switch Circuit Diagram
   - 5-3. Main Circuit Diagram
   - 5-4. Output Circuit Diagram
   - 5-5. Motor System Circuit Diagrams
6. PC BOARDS
   - 6-1. Power Supply PC Board
   - 6-2. Power Switch PC Board
   - 6-3. Main PC Board
   - 6-4. Output PC Board
   - 6-5. Output-RGB PC Board
   - 6-6. Front Display PC Board

SECTION 4
PARTS LIST

SAFETY PRECAUTION
NOTICE
ABBREVIATIONS

   1. Integrated Circuit (IC)
   2. Capacitor (Cap)
   3. Resistor (Res)

4. EXPLODED VIEWS
   - 4-1. Packing Assembly
   - 4-2. Chassis Assembly (Type A)
   - 4-3. Mechanism Assembly (Type A)
   - 4-4. Chassis Assembly (Type B)
   - 4-5. Mechanism Assembly (Type B)
5. PARTS LIST

SECTION 1
GENERAL DESCRIPTIONS

1. OPERATING INSTRUCTIONS

SAFETY PRECAUTIONS

WARNING: **TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.**

CAUTION: This Digital Video Disc Player employs a Laser System.
To ensure proper use of this product, please read this owner’s manual carefully and retain for future reference. Should the unit require maintenance, contact an authorized service location - see service procedure.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

To prevent direct exposure to laser beam, do not try to open the enclosure.
Visible and invisible laser radiation when open and interlocks defeated.
DO NOT STARE INTO BEAM.

CLASS 1
LASER PRODUCT

In the spaces provided below, record the Model and Serial No. located on the rear panel of your DVD player.

Model No. ____________________ Serial No. ____________________

Retain this information for future reference.

The following information applies only to the model for U.K.

General Information

If the socket outlets in your home are not suitable for the plug supplied with this unit, the plug must be cut off and an appropriate one fitted.

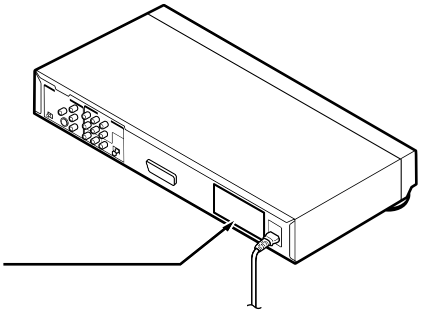
The plug severed from this mains lead must be destroyed as it is hazardous if inserted into a live socket.

IMPORTANT
The wires in this mains lead are coloured in accordance with the following code:
BLUE: NEUTRAL
BROWN: LIVE
As the colours of the wires in the mains lead of this unit may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire that is coloured blue must be connected to the terminal in the plug which is marked with the letter N or coloured black.
The wire that is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

Do not connect either wire to the earth terminal which is marked by the letter E or by the safety earth symbol ⏚ or coloured green or green-and-yellow.

Use a 5A fuse which is approved by ASTA or BSI to BS1362.
Always replace the fuse cover after changing the fuse.

Location of the required label



The rating plate and the safety caution are on the rear of the unit.

IMPORTANT SAFETY INSTRUCTIONS

CAUTION: PLEASE READ AND OBSERVE ALL WARNINGS AND INSTRUCTIONS GIVEN IN THIS OWNER'S MANUAL AND THOSE MARKED ON THE UNIT. RETAIN THIS BOOKLET FOR FUTURE REFERENCE.

This set has been designed and manufactured to assure personal safety. Improper use can result in electric shock or fire hazard. The safeguards incorporated in this unit will protect you if you observe the following procedures for installation, use and servicing. This unit is fully transistorized and does not contain any parts that can be repaired by the user.
DO NOT REMOVE THE CABINET COVER, OR YOU MAY BE EXPOSED TO DANGEROUS VOLTAGE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.

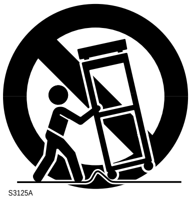
7. Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

10. Only use attachments/accessories specified by the manufacturer.

11. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



12. Unplug this apparatus during lightning storms or when unused for long periods of time.

IMPORTANT SAFETY INSTRUCTIONS

13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

ADDITIONAL SAFETY INSTRUCTIONS

14. When you use headphones, keep the volume at a moderate level. If you use the headphones continuously with high volume sound, it may cause hearing damage.

15. Do not overload wall outlets; extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

16. Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.

17. Keep your fingers well clear of the disc tray as it is closing. Neglecting to do so may cause serious personal injury.

18. Do not place a heavy object on or step on the apparatus. The object may fall, causing serious personal injury and serious damage to the apparatus.

19. Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and apparatus malfunction.

Precautions

Notes on handling

- When shipping the DVD player, the original shipping carton and packing materials come in handy. For maximum protection, repack the unit as it was originally packed at the factory.
- Do not use volatile liquids, such as insect spray, near the DVD player. Do not leave rubber or plastic products in contact with the DVD player for a long time. They will leave marks on the finish.
- The top and rear panels of the DVD player may become warm after a long period of use. This is not a malfunction.
- When the DVD player is not in use, be sure to remove the disc and turn off the power.
- If you do not use the DVD player for a long period, the unit may not function properly in the future. Turn on and use the DVD player occasionally.

Notes on locating

- Place the DVD player on a level surface. Do not use it on a shaky or unstable surface such as a wobbling table or inclined stand. The loaded disc may come off the proper position and cause damage to the DVD player.
- When you place this DVD player near a TV, radio, or VTR, the playback picture may become poor and the sound may be distorted. In this case, place the DVD player away from the TV, radio, or VTR.

Notes on cleaning

Use a soft, dry cloth for cleaning.

- For stubborn dirt, soak the cloth in a weak detergent solution, wring well and wipe. Use a dry cloth to wipe it dry.
  Do not use any type of solvent, such as thinner and benzine, as they may damage the surface of the DVD player.
- If you use a chemical saturated cloth to clean the unit, follow that product’s instructions.

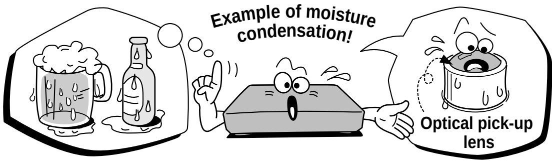
To obtain a clear picture

The DVD player is a high technology, precision device. If the optical pick-up lens and disc drive parts are dirty or worn down, the picture quality becomes poor. To obtain a clear picture, we recommend regular inspection and maintenance (cleaning or parts replacement) every 1,000 hours of use depending on the operating environment. For details, contact your nearest dealer.

Notes on moisture condensation

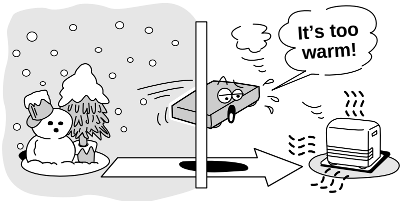
Moisture condensation damages the DVD player. Please read the following carefully.

Moisture condensation occurs, for example, when you pour a cold drink into a glass on a warm day. Drops of water form on the outside of the glass. In the same way, moisture may condense on the optical pick-up lens inside this unit, one of the most crucial internal parts of the DVD player.



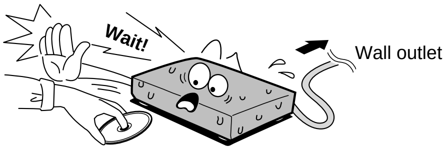
- **Moisture condensation occurs during the following cases.**

● When you bring the DVD player directly from a cold place to a warm place.
● When you use the DVD player in a room where you just turned on the heater, or a place where the cold wind from the air conditioner directly hits the unit.
● In summer, when you use the DVD player in a hot and humid place just after you move the unit from an air conditioned room.
● When you use the DVD player in a humid place.


It’s too warm!

- **Do not use the DVD player when moisture condensation may occur.**

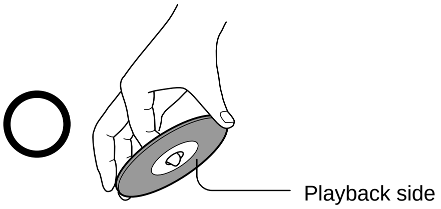
  If you use the DVD player in such a situation, it may damage discs and internal parts. Remove the disc, connect the power cord of the DVD player to the wall outlet, turn on the DVD player, and leave it for two or three hours. After two or three hours, the DVD player will have warmed up and evaporated any moisture. Keep the DVD player connected to the wall outlet and moisture condensation will seldom occur.



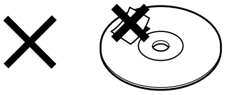
Notes on Discs

On handling discs

- Do not touch the playback side of the disc.

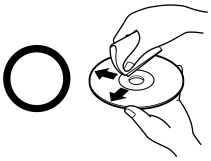


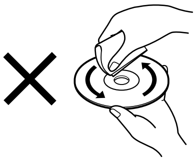
- Do not attach paper or tape to discs.



On cleaning discs

- Fingerprints and dust on the disc cause picture and sound deterioration. Wipe the disc from the center outwards with a soft cloth. Always keep the disc clean.





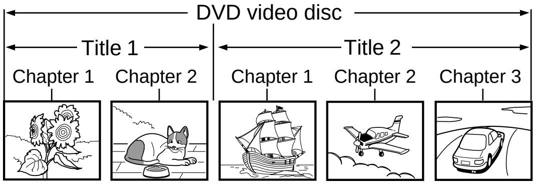
- If you cannot wipe off the dust with a soft cloth, wipe the disc lightly with a slightly moistened soft cloth and finish with a dry cloth.
- Do not use any type of solvent such as thinner, benzine, commercially available cleaners or antistatic spray for vinyl LPs. It may damage the disc.

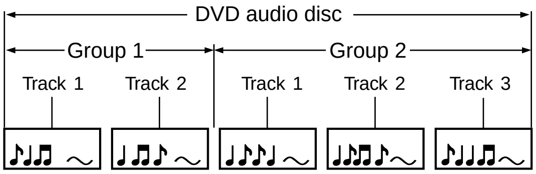
On storing discs

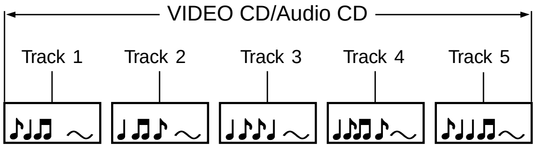
- Do not store discs in a place subject to direct sunlight or near heat sources.
- Do not store discs in places subject to moisture and dust such as a bathroom or near a humidifier.
- Store discs vertically in a case. Stacking or placing objects on discs outside of their case may cause warping.

Structure of disc contents

Normally, DVD video discs are divided into titles, and the titles are sub-divided into chapters. DVD audio discs are divided into groups, and the groups are sub-divided into tracks. VIDEO CDs/audio CDs are divided into tracks.







Each title, chapter, group, or track is assigned a number, which is called “title number”, “chapter number”, “group number” or “track number” respectively.
There may be discs that do not have these numbers.

Notes on copyright

It is forbidden by law to copy, broadcast, show, broadcast on cable, play in public, and rent copyrighted material without permission.

DVD video discs are copy protected, and any recordings made from these discs will be distorted.

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Notes on Discs (continued)

About this owner's manual

This owner's manual explains the basic instructions of this DVD player. Some DVD video discs are produced in a manner that allows specific or limited operation during playback. As such, the DVD player may not respond to all operating commands. This is not a defect in the DVD player. Refer to instruction notes of discs.

"⊘" may appear on the TV screen during operation.
A "⊘" means that the operation is not permitted by the DVD player or the disc.

Notes on region numbers

The region number of this DVD player is 2. If region numbers, which stand for their playable area, are printed on your DVD video disc and you do not find 2 or ALL, disc playback will not be allowed by the player. (In this case, the DVD player will display a message on-screen.)

On VIDEO CDs

This DVD player supports VIDEO CDs equipped with the PBC (Version 2.0) function. (PBC is the abbreviation of Playback Control.) You can enjoy two playback variations depending on types of discs.

- **VIDEO CD not equipped with PBC function (Version 1.1)**
  Sound and movie can be played on this DVD player in the same way as an audio CD.
- **VIDEO CD equipped with PBC function (Version 2.0)**
  In addition to operation of a VIDEO CD not equipped with the PBC function, you can enjoy playback of interactive software with search function by using the menu displayed on the TV screen (Menu Playback).
  Some of the functions described in this owner's manual may not work with some discs.

Playable discs

This DVD player can play the following discs.

	Disc Mark	Contents	Disc Size
DVD video discs	DVD VIDEO DVD VIDEO	Video (moving pictures) + Audio	12 cm
			8 cm
DVD audio discs	DVD AUDIO	Audio	12 cm
			8 cm
VIDEO CDs	COMPACT disc DIGITAL VIDEO	Video (moving pictures) + Audio	12 cm
			8 cm
Audio CDs	COMPACT disc DIGITAL AUDIO	Audio	12 cm
			8 cm (CD single)

The following discs are also available.
● DVD-R discs of DVD video format
● CD-R/CD-RW discs of CD-DA format
Some of these discs may be incompatible.

- You cannot play discs other than those listed above.
- You cannot play DVD-RAM discs or non-standardized discs, etc., even if they may be labeled as above.
- This DVD player uses the PAL/NTSC color system, and cannot play DVD discs recorded in any other color system (SECAM, etc.).

Table of Contents

Introduction

- **SAFETY PRECAUTIONS** 2
- **IMPORTANT SAFETY INSTRUCTIONS** 4
- **Precautions** 8
- **Notes on Discs** 9
  - Notes on region numbers 10
- **Table of Contents** 11
- **Identification of Controls** 12
  - Front panel 12
  - Rear panel 12
  - DVD display 13
  - Remote control 14
  - Loading batteries 15
  - Operating with the remote control 15

Connections

- **Connecting to a TV** 18
  - Connecting to a TV (Using the SCART socket) 18
  - Connecting to a TV (Using the component video jacks) 19
  - Connecting to a TV (Using the phono type jacks) 20
- **Connecting to Optional Equipment** 21
  - Connecting to an amplifier equipped with a Dolby Digital decoder 22
  - Connecting to an amplifier equipped with Dolby Surround Pro Logic 22
  - Connecting to an amplifier equipped with a DTS decoder 23
  - Connecting to an amplifier equipped with an MPEG2 audio decoder 23
  - Connecting to an amplifier equipped with 5.1ch audio inputs 24
  - Connecting to an amplifier equipped with a digital audio input 24

Basic playback

- **Playing a Disc** 26
  - Basic playback 26
- **Variable Speed Playback** 28
  - Playing in fast reverse or fast forward directions 28
  - Playing frame by frame 28
  - Playing in slow-motion 29
  - Resuming playback from the same location 29
- **Locating a Desired Section** 30
  - Locating a title using the top menu 30
  - Locating a desired section by entering the corresponding number 31
  - Locating a specific chapter or track 31
- **Playing an MP3 Encoded CD** 32
  - Playing an MP3 encoded CD 32

Advanced playback

- **Accessing a Specific Location Directly** 34
  - Entering the time counter of the desired location 34
- **Playing Repeatedly** 35
  - Repeating a title, chapter, group or track 35
  - Repeating a specific segment 35
- **Playing in a Favorite Order** 36
  - Setting titles, chapters, groups or tracks in a favorite order 36
- **Playing in Random Order** 37
  - Playing titles, chapters, groups or tracks in random order 37
- **Zooming a Picture** 38
  - Zooming a picture 38
- **Selecting the Sound Enhancement (E.A.M.)** 39
  - Selecting the sound enhancement 39
- **Selecting the Camera Angle** 40
  - Changing the camera angle 40
- **Selecting Subtitles** 41
  - Selecting a subtitle language 41
- **Selecting a Language** 42
  - Selecting a playback audio setting 42

Quick control

- **Using the Graphic Remote Control - V-REMOTE -** 46
- **Selecting the Playback Function - QUICK -** 47
- **Accessing Features - NAVI -** 48

Function setup

- **Customizing the Function Settings** 56
  - Setting procedure 56
  - Setting details 59
- **Table of Languages** 68

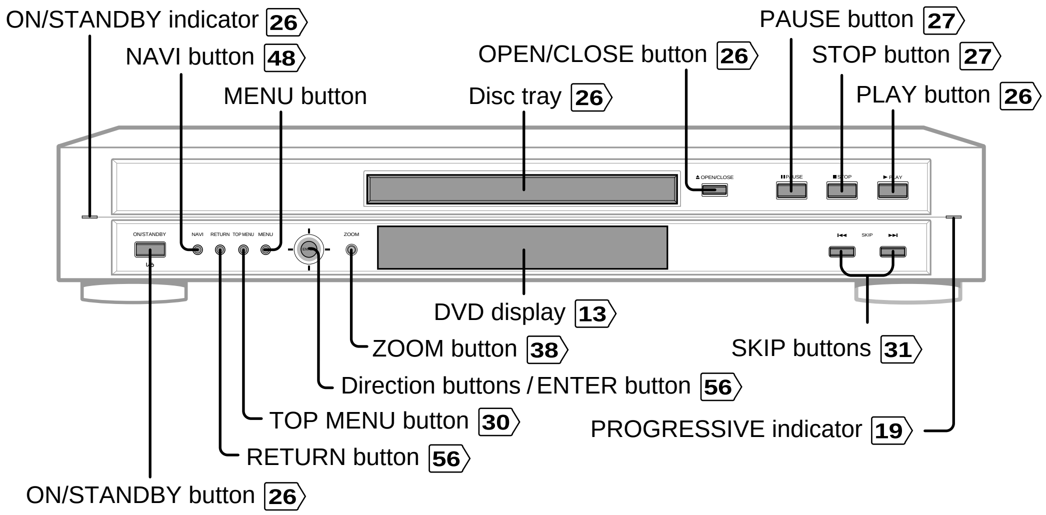
Others

- **Operating a TV with the Remote Control** 70
- **Before Calling Service Personnel** 72
- **Specifications** 73

Identification of Controls

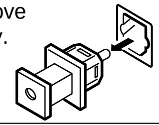
See the page in 〉 for details.

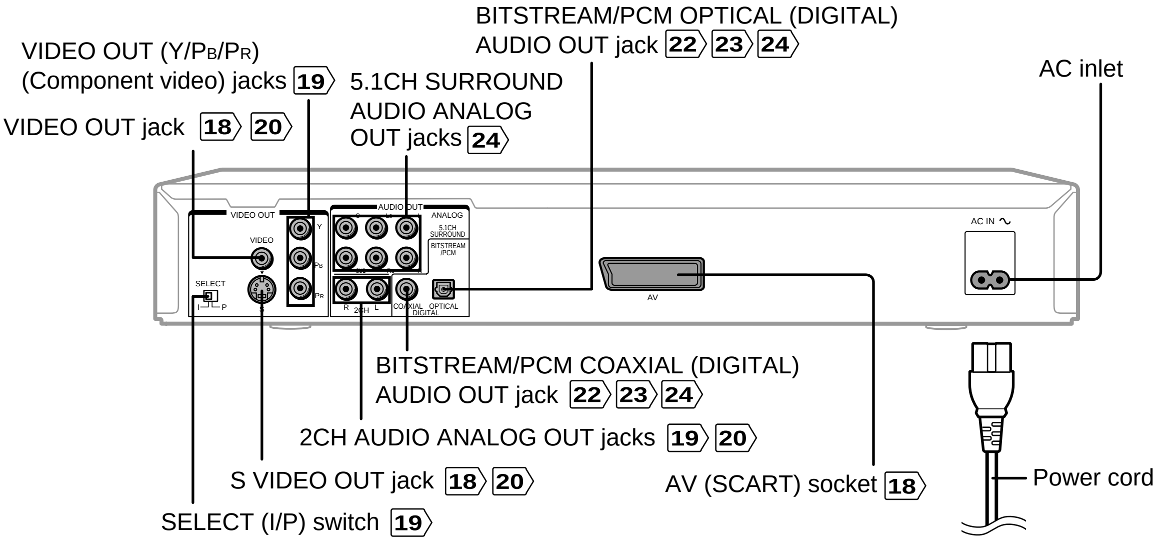
Front panel


ON/STANDBY indicator 26
NAVI button 48
MENU button
Disc tray 26
OPEN/CLOSE button 26
PAUSE button 27
STOP button 27
PLAY button 26
ON/STANDBY
NAVI
RETURN
TOP MENU
MENU
ZOOM
OPEN/CLOSE
PAUSE
STOP
PLAY
SKIP
DVD display 13
ZOOM button 38
SKIP buttons 31
Direction buttons / ENTER button 56
TOP MENU button 30
PROGRESSIVE indicator 19
RETURN button 56
ON/STANDBY button 26

Rear panel

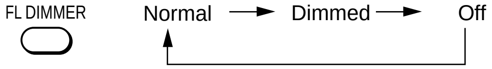
When connecting the optical digital cable, remove the cap and fit the connector into the jack firmly. When not using the jack, keep the cap inserted to protect it from dust intrusion.

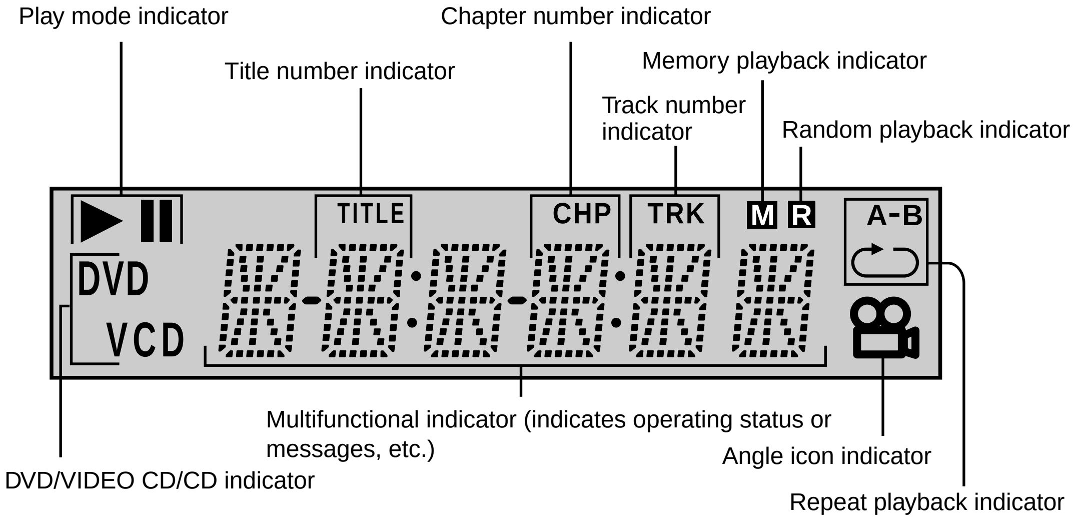



BITSTREAM/PCM OPTICAL (DIGITAL) AUDIO OUT jack 22 23 24
VIDEO OUT (Y/PB/PR) (Component video) jacks 19
5.1CH SURROUND AUDIO ANALOG OUT jacks 24
AC inlet
VIDEO OUT jack 18 20
VIDEO OUT
VIDEO
Y
PB
PR
SELECT
I
P
S
AUDIO OUT
ANALOG
5.1CH SURROUND
BITSTREAM /PCM
R
2CH
L
COAXIAL
OPTICAL
DIGITAL
AV
AC IN ∿
BITSTREAM/PCM COAXIAL (DIGITAL) AUDIO OUT jack 22 23 24
2CH AUDIO ANALOG OUT jacks 19 20
S VIDEO OUT jack 18 20
AV (SCART) socket 18
Power cord
SELECT (I/P) switch 19

DVD display

■ **Repeated pressing of the FL DIMMER button on the remote control changes the brightness of the display.**


FL DIMMER
Normal
Dimmed
Off


Play mode indicator
Title number indicator
Chapter number indicator
Memory playback indicator
Track number indicator
Random playback indicator
TITLE
CHP
TRK
M
R
A-B
DVD
VCD
Multifunctional indicator (indicates operating status or messages, etc.)
Angle icon indicator
DVD/VIDEO CD/CD indicator
Repeat playback indicator

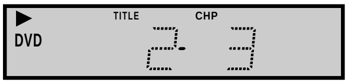
■ **When you start playback, the elapsed time indicators appear. Pressing the FL SELECT button switches them to the title/chapter/track number indicators. Some discs may not permit this operation.**

The indicators vary depending on the kinds of discs you play.

DVD video disc

- During playback:

Example


TITLE
CHP
DVD
2
3

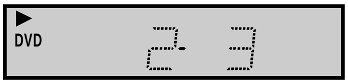
Playing chapter 3 of title 2

Some discs may not display chapter numbers or elapsed time.

DVD audio disc

- During playback:

Example

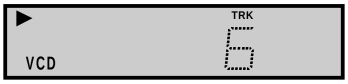


Playing track 3 of group 2

VIDEO CD

- During playback:

Example



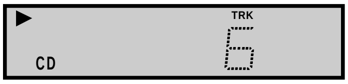
Playing track 6

Some discs may not display track numbers or elapsed time.

Audio CD

- During playback:

Example

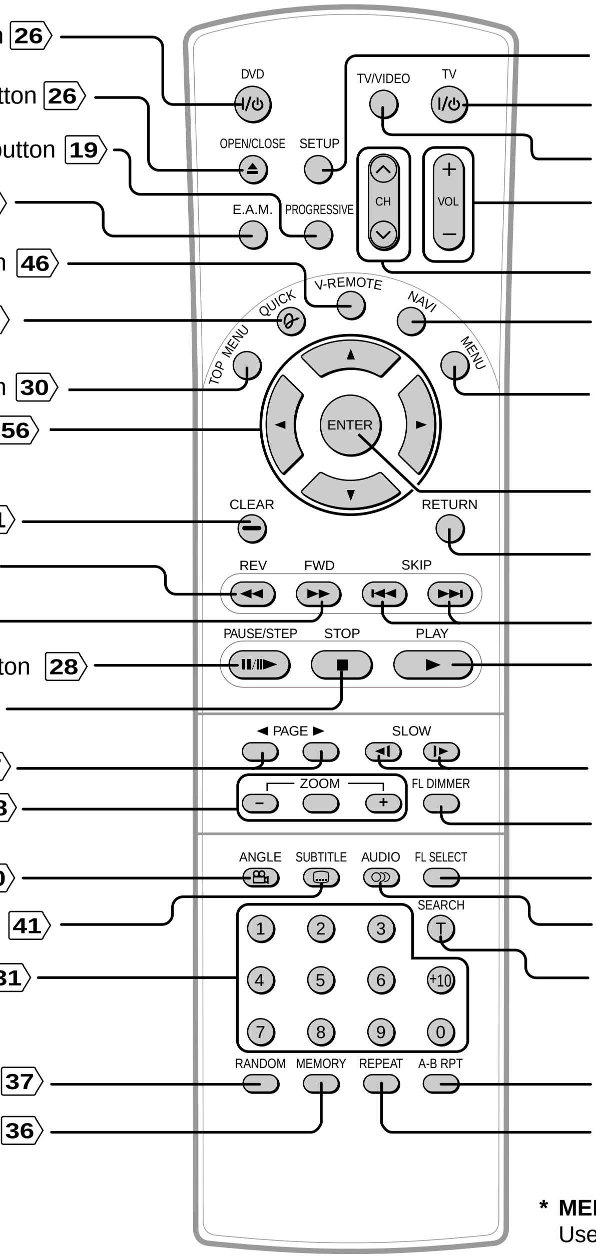


Playing track 6

Identification of Controls (continued)

The instructions in this manual describe the functions on the remote control. See the page in ⟩ for details.

Remote control


DVD
I/⏻
TV/VIDEO
TV
I/⏻
OPEN/CLOSE
SETUP
CH
VOL
E.A.M.
PROGRESSIVE
V-REMOTE
QUICK
NAVI
TOP MENU
MENU
ENTER
CLEAR
RETURN
REV
FWD
SKIP
PAUSE/STEP
STOP
PLAY
◄ PAGE ►
SLOW
ZOOM
FL DIMMER
ANGLE
SUBTITLE
AUDIO
FL SELECT
SEARCH
T
1
2
3
4
5
6
+10
7
8
9
0
RANDOM
MEMORY
REPEAT
A-B RPT

DVD power button 26

OPEN/CLOSE button 26

PROGRESSIVE button 19

E.A.M. button 39

V-REMOTE button 46

QUICK button 47

TOP MENU button 30

Direction buttons 56
(▲/▼/◄/►)

CLEAR button 31

REV button 28

FWD button 28

PAUSE/STEP button 28

STOP button 27

PAGE buttons 27

ZOOM buttons 38

ANGLE button 40

SUBTITLE button 41

Number buttons 31

RANDOM button 37

MEMORY button 36

SETUP button 56

TV power button 70

TV/VIDEO button 70

VOL (Volume) buttons 70

CH (Channel) buttons 70

NAVI button 48

MENU button*

ENTER button 56

RETURN button 56

SKIP buttons 31

PLAY button 26

SLOW buttons 29

FL DIMMER button 13

FL SELECT button 13

AUDIO button 42

T button 31

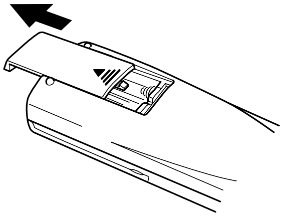
A-B RPT button 35

REPEAT button 35

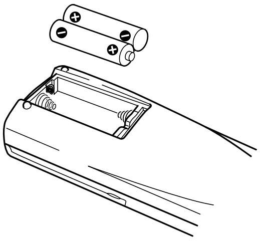
* **MENU button**
Use the MENU button to display the menu included on many DVD video discs. To operate a menu, follow the instructions in “Locating a title using the top menu.” 30

Loading batteries

1 **Open the cover.**

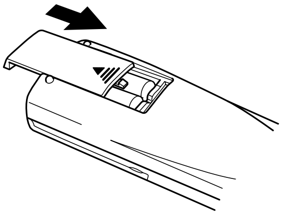


2 **Insert batteries (R03 size).**



Make sure to match the + and – on the batteries to the marks inside the battery compartment.

3 **Close the cover.**



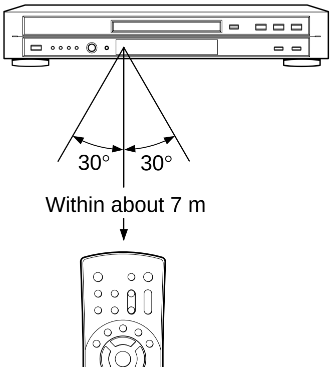
Notes on batteries

Improper use of batteries may cause battery leakage and corrosion. To operate the remote control correctly, follow the instructions below.

- Do not insert batteries into the remote control in the wrong direction.
- Do not charge, heat, open, or short-circuit the batteries. Do not throw batteries into a fire.
- Do not leave dead or exhausted batteries in the remote control.
- Do not use different types of batteries together, or mix old and new batteries.
- If you do not use the remote control for a long period of time, remove the batteries to avoid possible damage from battery corrosion.
- If the remote control does not function correctly or if the operating range becomes reduced, replace all batteries with new ones.
- If battery leakage occurs, wipe the battery liquid from the battery compartment, then insert new batteries.

Operating with the remote control

Point the remote control at the remote sensor and press the buttons.



Distance: About 7 m from the front of the remote sensor

Angle: About 30° in each direction of the front of the remote sensor

* Do not expose the remote sensor of the DVD player to a strong light source such as direct sunlight or other illumination. If you do so, you may not be able to operate the DVD player via the remote control.

Notes on the remote control

- Direct the remote control at the remote sensor of the DVD player.
- Do not drop or give the remote control a shock.
- Do not leave the remote control near an extremely hot or humid place.
- Do not spill water or put anything wet on the remote control.
- Do not open the remote control.

Connections

Read this chapter first to make all necessary preparations.

- Connecting to a TV (Using the SCART socket)
- Connecting to a TV (Using the component video jacks)
- Connecting to a TV (Using the phono type jacks)
- Connecting to an amplifier equipped with a Dolby Digital decoder
- Connecting to an amplifier equipped with Dolby Surround Pro Logic
- Connecting to an amplifier equipped with a DTS decoder
- Connecting to an amplifier equipped with an MPEG2 audio decoder
- Connecting to an amplifier equipped with 5.1ch audio inputs
- Connecting to an amplifier equipped with a digital audio input

Connecting to a TV

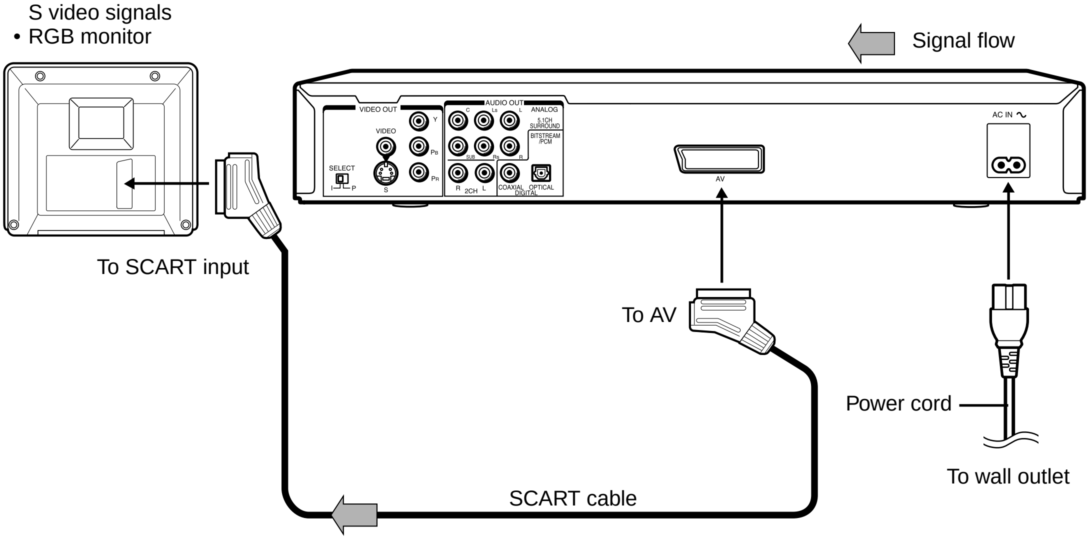
Connect the DVD player to your TV.

For details of output sound, see 43.

Connect the DVD player directly to your TV. If you connect the DVD player to a VTR, TV/VTR combination or video selector, the playback picture may be distorted as DVD video discs are copy protected.

Connecting to a TV (Using the SCART socket)

- Normal TV
- TV compatible with S video signals
- RGB monitor


Signal flow
VIDEO OUT
VIDEO
Y
PB
PR
S
SELECT
I P
AUDIO OUT
C
Ls
L
ANALOG
5.1CH SURROUND
BITSTREAM /PCM
SUB
Rs
R
R
2CH
L
COAXIAL
OPTICAL
DIGITAL
AV
AC IN
To SCART input
To AV
Power cord
To wall outlet
SCART cable

- Make the following setting.

Setting / TV	See “Customizing the Function Settings” beginning from 56.	
	“Video Out Select” 60	“Analog Output” 61
Normal TV	“Video”	“Stereo”
TV compatible with S video signals	“S Video”	“Stereo”
RGB monitor	“RGB”	“Stereo”

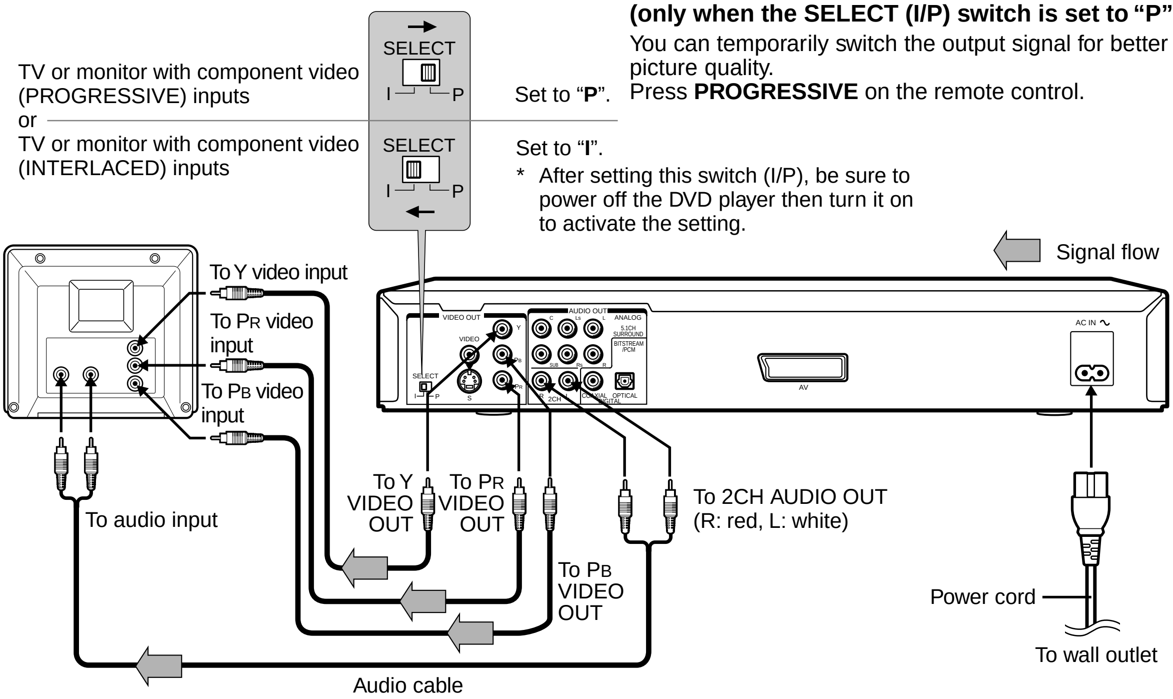
Notes

- Refer to the owner’s manual of the connected TV as well.
- When you connect the DVD player to your TV, be sure to turn off the power and unplug both units from the wall outlet before making any connections.

Connecting to a TV (Using the component video jacks)

■ Switching the output signal (interlaced/ progressive) using the remote control (only when the SELECT (I/P) switch is set to “P”)

You can temporarily switch the output signal for better picture quality.
Press **PROGRESSIVE** on the remote control.


TV or monitor with component video (PROGRESSIVE) inputs
or
TV or monitor with component video (INTERLACED) inputs
SELECT
I
P
Set to “**P**”.
SELECT
I
P
Set to “**I**”.
Signal flow
To Y video input
To PR video input
To PB video input
VIDEO OUT
VIDEO
Y
PB
PR
SELECT
I
P
S
AUDIO OUT
ANALOG
C
LS
L
5.1CH SURROUND
BITSTREAM /PCM
SUB
RS
R
2CH
COAXIAL
OPTICAL
DIGITAL
AV
AC IN
To audio input
To Y VIDEO OUT
To PR VIDEO OUT
To PB VIDEO OUT
To 2CH AUDIO OUT (R: red, L: white)
Power cord
To wall outlet
Audio cable

* After setting this switch (I/P), be sure to power off the DVD player then turn it on to activate the setting.

PROGRESSIVE (525P (480P)) outputs/inputs

Some TVs or monitors are equipped with component video inputs that are capable of reproducing a progressively scanned video signal. Connecting to these inputs allows you to view the high quality pictures with less flicker.

Notes

- To output video signals in the progressive format, set “PAL/Auto” to “Auto” 60.
- A disc recorded in the PAL system cannot be viewed in the progressive output format. Video signals of those discs are output always in the interlaced output format.

INTERLACED outputs/inputs

Some TVs or monitors are equipped with component video inputs. Connecting to these inputs allows you to enjoy higher quality picture playback.
Actual labels for component video inputs may vary depending on the TV manufacturer. (ex. Y, R-Y, B-Y or Y, CB, CR)
In some TVs or monitors, the color levels of the playback picture may be reduced slightly or the tint may change. In such a case, adjust the TV or monitor for optimum performance.

- Make the following setting.

Setting TV	See “Customizing the Function Settings” beginning from 56.	
	“Video Out Select” 60	“Analog Output” 61
TV or monitor with component video inputs	“Video” or “S Video”	“Stereo”

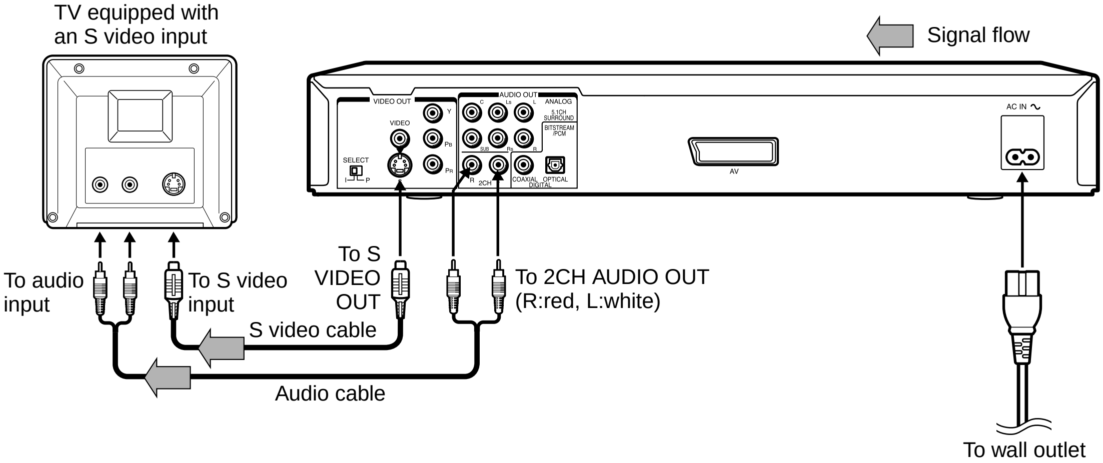
Notes

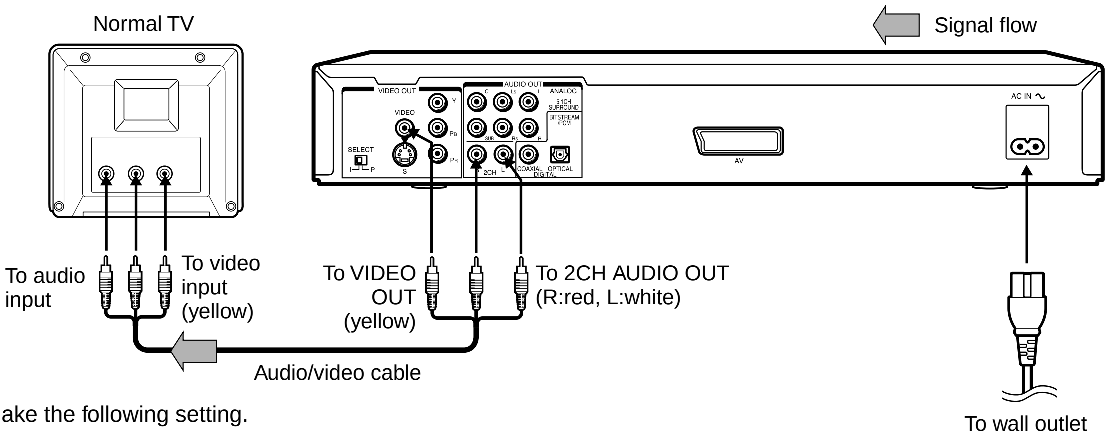
- Refer to the owner’s manual of the connected equipment as well.
- When you connect the DVD player to other equipment, be sure to turn off the power and unplug all of the equipment from the wall outlet before making any connections.
- If you place the DVD player near a tuner or radio, the radio broadcast sound might be distorted. In this case, place the DVD player away from the tuner and radio.
- The output sound of the DVD player has a wide dynamic range. Be sure to adjust the receiver’s volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.
- Turn off the amplifier before you connect or disconnect the DVD player’s power cord. If you leave the amplifier power on, the speakers may be damaged.

Connecting to a TV (continued)

Connecting to a TV (Using the phono type jacks)

■ Select the connection type depending on the TV. (TV equipped with an S video input / Normal TV)


TV equipped with
an S video input
Signal flow
VIDEO OUT
AUDIO OUT
AC IN
AV
To audio input
To S video input
To S VIDEO OUT
To 2CH AUDIO OUT (R:red, L:white)
S video cable
Audio cable
To wall outlet


Normal TV
Signal flow
VIDEO OUT
AUDIO OUT
AC IN
AV
To audio input
To video input (yellow)
To VIDEO OUT (yellow)
To 2CH AUDIO OUT (R:red, L:white)
Audio/video cable
To wall outlet

- Make the following setting.

Setting TV	See “Customizing the Function Settings” beginning from 56.	
	“Video Out Select” 60	“Analog Output” 61
TV equipped with an S video input	“S Video”	“Stereo”
Normal TV	“Video”	“Stereo”

Notes

- Refer to the owner’s manual of the connected equipment as well.
- When you connect the DVD player to other equipment, be sure to turn off the power and unplug all of the equipment from the wall outlet before making any connections.
- If your television set has one audio input, connect the DVD player to a Y cable adapter (not supplied) and then connect to your TV.
- If you place the DVD player near a tuner or radio, the radio broadcast sound might be distorted. In this case, place the DVD player away from the tuner and radio.
- The output sound of the DVD player has a wide dynamic range. Be sure to adjust the receiver’s volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.
- Turn off the amplifier before you connect or disconnect the DVD player’s power cord. If you leave the amplifier power on, the speakers may be damaged.

Connecting to Optional Equipment

You can enjoy high quality dynamic sounds by connecting the DVD player to optional audio equipment.

- For connection to your TV, see “Connecting to a TV” 18 – 20.
- For details of output sound, see 43.
- This section uses the following reference marks.

■ : Front speaker
▨ : Rear speaker
◫ : Sub woofer
▯ : Center speaker
⇨ : Signal flow

Notes

- DO NOT connect the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack of the DVD player to the AC-3 RF input of a Dolby Digital Receiver. This input on your A/V Receiver is reserved for Laserdisc use only and is incompatible with the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack of the DVD player.
- Connect the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack of the DVD player to the “DIGITAL (OPTICAL)” or “DIGITAL (COAXIAL)” input of a Receiver or Processor.
- Refer to the owner’s manual of the connected equipment as well.
- When you connect the DVD player to other equipment, be sure to turn off the power and unplug all of the equipment from the wall outlet before making any connections.
- The output sound of the DVD player has a wide dynamic range. Be sure to adjust the receiver’s volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.
- Turn off the amplifier before you connect or disconnect the DVD player’s power cord. If you leave the amplifier power on, the speakers may be damaged.

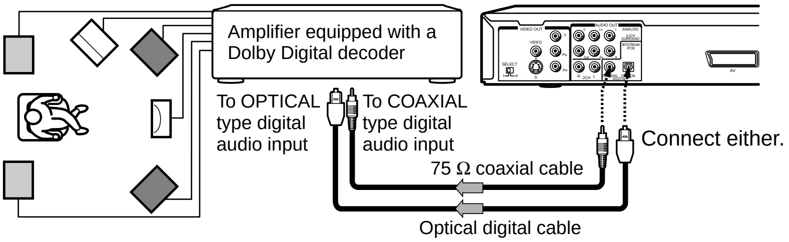
Warning

- When you are connecting (via the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack) an AV decoder that does not have Dolby Digital or MPEG2 decoding function, be sure to set “Digital Output” to “PCM” from the on-screen displays 56 62. Otherwise, high volume sound may damage your hearing as well as the speakers.
- DO NOT play DTS-encoded discs when you are connecting an AV decoder that does not have DTS decoding function.
- When playing DTS-encoded discs (audio CDs), excessive noise may be output from the analog audio output jacks. To avoid possible damage to the audio system, you should take proper precautions when the analog audio output jacks of the DVD player are connected to an amplification system. To enjoy DTS Digital Surround™ playback, an external 5.1 channel DTS Digital Surround™ decoder system must be connected to the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack of the DVD player.

Connecting to Optional Equipment (continued)

Connecting to an amplifier equipped with a Dolby Digital decoder

Dolby Digital
Dolby Digital is the surround sound technology used in theaters showing the latest movies, and is now available to reproduce this realistic effect in the home. You can enjoy motion picture and live concert DVD video discs with this dynamic realistic sound by connecting the DVD player to a 6 channel amplifier equipped with a Dolby Digital decoder or Dolby Digital processor. If you have a Dolby Surround Pro Logic decoder, you will obtain the full benefit of Pro Logic from the same DVD movies that provide full 5.1-channel Dolby Digital soundtracks, as well as from titles with the Dolby Surround mark.


Amplifier equipped with a Dolby Digital decoder
To OPTICAL type digital audio input
To COAXIAL type digital audio input
Connect either.
75 Ω coaxial cable
Optical digital cable

Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic", and the double-D symbol are trademarks of Dolby Laboratories. Confidential unpublished works. Copyright 1992-1997 Dolby Laboratories. All rights reserved.

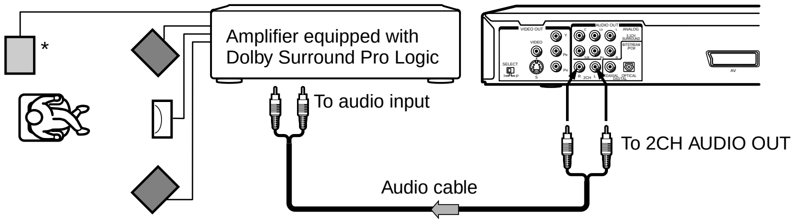
- Use DVD video discs encoded via the Dolby Digital recording system.
- Make the following setting.

On-screen display	Select:	Page
"Digital Output"	"Bitstream"	56 62
"Analog Output"	"Stereo"	56 61
Recording system	DD D	42

Connecting to an amplifier equipped with Dolby Surround Pro Logic

Dolby Surround Pro Logic
You can enjoy the dynamic realistic sound of Dolby Surround Pro Logic by connecting an amplifier and speaker system (right and left front speakers, a center speaker, and one or two rear speakers).

- **With an amplifier equipped with Dolby Digital**
  Connect the equipment the same way as described in "Connecting to an amplifier equipped with a Dolby Digital decoder." Refer to that amplifier's owner's manual and set the amplifier so you can enjoy Dolby Surround Pro Logic sound.
- **With an amplifier not equipped with Dolby Digital**
  Connect the equipment as follows.


*
Amplifier equipped with Dolby Surround Pro Logic
To audio input
To 2CH AUDIO OUT
Audio cable

- Make the following setting.

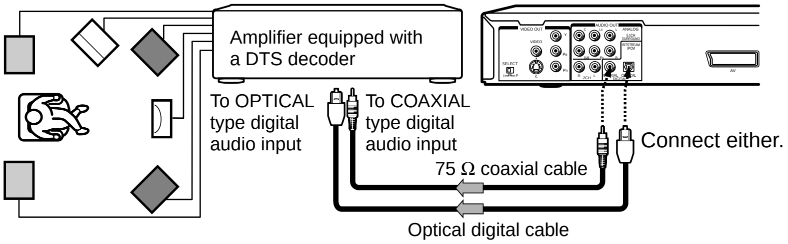
On-screen display	Select:	Page
"Analog Output"	"Stereo"	56 61

Be sure to set "Analog Output" to "Stereo" when you enjoy sounds of Dolby Surround Pro Logic using this connection.

* Connect one or two rear speakers.
The output sound from the rear speakers will be monaural even if you connect two rear speakers.

Connecting to an amplifier equipped with a DTS decoder

Digital Theater Systems (DTS)
DTS is a high quality surround technology used in theaters and now available for home use, on DVD video discs or audio CDs.
If you have a DTS decoder or processor, you can obtain the full benefit of 5.1 channel DTS encoded sound tracks on DVD video discs or audio CDs.


Amplifier equipped with a DTS decoder
To OPTICAL type digital audio input
To COAXIAL type digital audio input
Connect either.
75 Ω coaxial cable
Optical digital cable

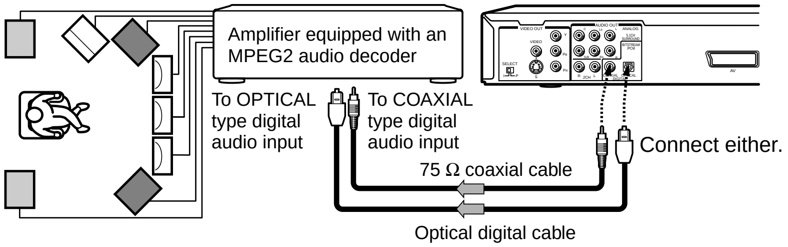
"DTS" and "DTS Digital Out" are trademarks of Digital Theater Systems, Inc.

- Use DVD video discs or audio CDs encoded via the DTS recording system.
- Make the following setting.

On-screen display	Select:	Page
"Digital Output"	"Bitstream" or "PCM"	56 62
"Analog Output"	"Stereo"	56 61
Recording system	DTS	42

Connecting to an amplifier equipped with an MPEG2 audio decoder

MPEG2 sound
You can enjoy motion picture and live concert DVD video discs with dynamic realistic sound by connecting an amplifier equipped with an MPEG2 audio decoder or MPEG2 audio processor.


Amplifier equipped with an MPEG2 audio decoder
To OPTICAL type digital audio input
To COAXIAL type digital audio input
Connect either.
75 Ω coaxial cable
Optical digital cable

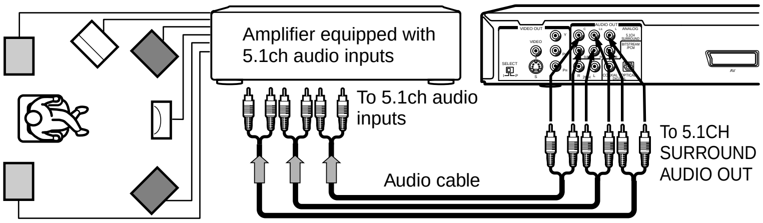
- Use DVD video discs encoded via the MPEG2 recording system.
- Make the following setting.

On-screen display	Select:	Page
"Digital Output"	"Bitstream"	56 62
"Analog Output"	"Stereo"	56 61
Recording system	MPEG2	42

Connecting to Optional Equipment (continued)

Connecting to an amplifier equipped with 5.1ch audio inputs

5.1ch surround sound
The Dolby Digital and MPEG2 decoders equipped with this DVD player enable you to obtain the full benefit of 5.1 channel sound tracks when you connect the DVD player to an amplifier equipped with 5.1 channel audio inputs.


Amplifier equipped with 5.1ch audio inputs
To 5.1ch audio inputs
Audio cable
To 5.1CH SURROUND AUDIO OUT

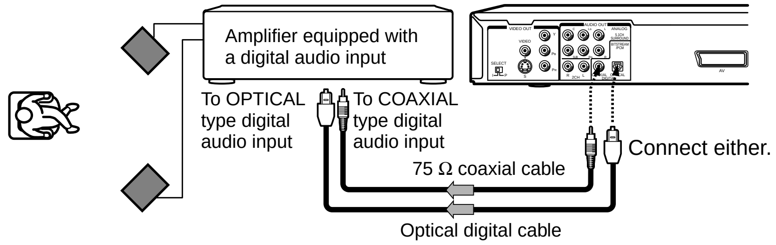
- Use DVD video discs encoded via the Dolby Digital recording system.
- Make the following setting.

On-screen display	Select:	Page
“Analog Output”	“Multi”	56 61
Recording system	DD D/ MPEG2	42

When “DD Pro Logic” is set to “On,” 2 channel sound is output in the Dolby Surround Pro Logic format. To obtain the original 2 channel sound, set “DD Pro Logic” to “Off”.

Connecting to an amplifier equipped with a digital audio input

2 channel digital stereo
You can enjoy the dynamic sound of 2 channel digital stereo by connecting an amplifier equipped with a digital audio input and speaker system (right and left front speakers).


Amplifier equipped with a digital audio input
To OPTICAL type digital audio input
To COAXIAL type digital audio input
75 Ω coaxial cable
Connect either.
Optical digital cable

- Make the following setting.

On-screen display	Select:	Page
“Digital Output”	“PCM”	56 62
“Analog Output”	“Stereo”	56 61

Basic playback

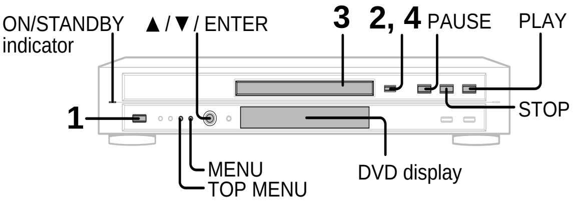
Begin your operation.

- **Playing a Disc**
- **Variable Speed Playback**
- **Locating a Desired Section**
- **Playing an MP3 Encoded CD**

Playing a Disc

This section shows you the basics on how to play a disc.

CAUTION
Keep your fingers well clear of the disc tray as it is closing. Neglecting to do so may cause serious personal injury.

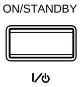


DVD-V DVD-A VCD CD Basic playback

Preparations

- When you want to view a disc, turn on the TV and select the video input connected to the DVD player.
- When you want to enjoy the sound of discs from the audio system, turn on the audio system and select the input connected to the DVD player.

1 Press the power button (ON/STANDBY).



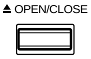
The DVD player turns on.
The ON/STANDBY indicator on the player shows the status as follows:
Green: in operation
Red: standby mode

When the DVD player is turned on for the first time, an on-screen display will appear to provide initial settings. Press the ▲ / ▼ buttons to select an item, and press the ENTER button. See the pages in , and make a selection using the ▲ / ▼ buttons, then press the ENTER button.

On-Screen Language 63
TV Shape 59

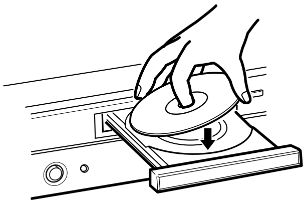
After making all the settings, select "⏎" and press the ENTER button.

2 Press OPEN/CLOSE.



The disc tray opens.

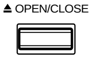
3 Place a disc on the disc tray.



With the playback side down.

- There are two different disc sizes. Place the disc in the correct guide on the disc tray. If the disc is out of the guide, it may damage the disc and cause the DVD player to malfunction.
- Do not place a disc which is unplayable in this DVD player.

4 Press OPEN/CLOSE to close the disc tray.



Playback starts.

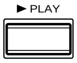
DVD-V If you insert a DVD video disc that contains a top menu, a menu may appear. See "Locating a title using the top menu." 30
You may need to press the TOP MENU or MENU button to display disc menu (depending on the actual DVD video disc.)

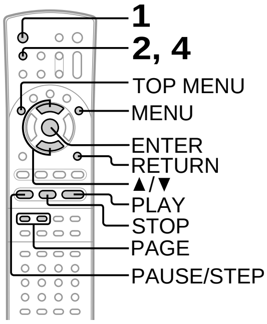
DVD-A A menu may appear depending on the disc.
See "Locating a title using the top menu" 30.

Note
If the disc tray contains a disc you have already played, playback will begin from the location where you last stopped playback. 29

■ To start playback in the stop mode

Press **PLAY**.





■ To obtain a higher quality picture

Occasionally, some picture noise not usually visible during a normal broadcast may appear on the TV screen while playing a DVD video disc because the high resolution pictures on these discs include a lot of information. While the amount of noise depends on the TV you use with this DVD player, you should generally reduce the sharpness adjustment on your TV when viewing DVD video discs.

■ About DVD-V DVD-A VCD CD

The DVD-V DVD-A VCD CD icons on the heading bar show the playable discs for the function described under that heading.

DVD-V	: DVD video discs	DVD-A	: DVD audio discs
VCD	: VIDEO CDs	CD	: Audio CDs

■ To pause playback (still mode)

Press **PAUSE/STEP** during playback.

PAUSE/STEP

To resume normal playback, press the PLAY button.

- Sound is muted during still mode.

■ To stop playback

Press **STOP**.

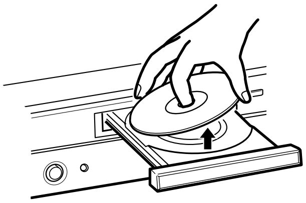
STOP

■ To remove the disc

Press **OPEN/CLOSE**.

OPEN/CLOSE

Remove the disc after the disc tray opens completely.



Be sure to press the OPEN/CLOSE button to close the disc tray after you remove the disc.

■ About the screen saver

If you pause a picture of a DVD video disc and leave it still for a long while, the screen saver of the DVD player automatically appears (when “Screen Saver” is set to “On” 64). To turn off the screen saver, press the PLAY button.

■ Automatic Power Off function

If the DVD player is stopped, or the screen saver is engaged for approximately 20 minutes, the DVD player will automatically turn itself off.

■ Still pictures included on DVD audio discs

DVD audio discs may include still pictures, which are classified into two large groups.

- Slideshow: Still pictures appear one after another automatically consistent with the disc program. They cannot be operated.

- Browsable pictures:
  You can display your favorite still picture selected with the buttons on the remote control. Some of those may change automatically.

◄ PAGE ► : To select a picture. (The order of pictures vary depending on the disc)

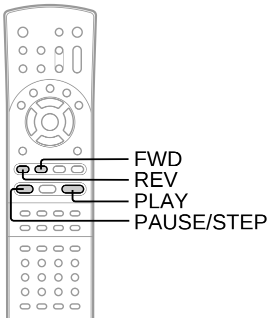
RETURN : To return to a specific one programmed on the disc.

Notes

- Do not move the DVD player during playback. Doing so may damage the disc.
- Use the OPEN/CLOSE button to open and close the disc tray. Do not push the disc tray while it is moving. Doing so may cause the DVD player to malfunction.
- Do not push up on the disc tray or put any objects other than discs on the disc tray. Doing so may cause the DVD player to malfunction.
- In many instances, a menu screen will appear after playback of a movie is completed. Prolonged display of an on-screen menu may damage your television set, permanently etching that image onto its screen. To avoid this, be sure to press the STOP button on your remote control once the movie is completed.

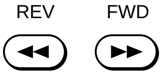
Variable Speed Playback

You can play discs at various speeds, and resume playback from the location where you stopped playback.



DVD-V DVD-A VCD CD Playing in fast reverse or fast forward directions

Press REV or FWD during playback.

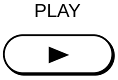


REV : Fast reverse playback
FWD : Fast forward playback

Each time you press the REV or FWD button, the playback speed changes.

■ **To resume normal playback**

Press **PLAY**.



Notes

- The DVD player mutes sound and omits subtitles during reverse and forward scan of DVD video discs.
- DVD audio discs may not be played in fast reverse or fast forward directions.
- The playback speed may differ depending on the disc.

DVD-V DVD-A VCD CD Playing frame by frame

Press PAUSE/STEP during still playback.

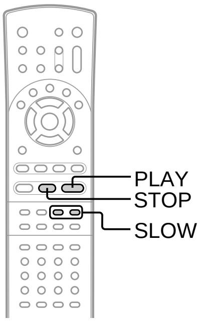
Each time you press the PAUSE/STEP button, the picture advances one frame.

■ **To resume normal playback**

Press **PLAY**.

Notes

- The sound is muted during frame by frame playback.
- When using a DVD audio disc that includes pictures, this operation may be permitted in some picture segments.



DVD-V DVD-A VCD CD Playing in slow-motion

Press SLOW during playback.

SLOW ◀I I▶

Each time you press the SLOW I▶ button, the slow-motion speed changes.

SLOW ◀I I▶

If you press the SLOW ◀I button during playback, you can view the picture in reverse slow-motion. (Only when using a DVD video disc.)

Each time you press the SLOW ◀I button, the slow-motion speed changes.

■ To resume normal playback

Press **PLAY**.

PLAY ▶

Notes

- The sound is muted during slow-motion playback.
- The playback speed may differ depending on the disc.
- When using a DVD audio disc that includes pictures, this operation may be permitted in some picture segments.

DVD-V DVD-A VCD CD Resuming playback from the same location

1 **Press STOP at the location where you want to interrupt playback.**

STOP ■

The DVD player memorizes the location where playback is stopped.

2 **Press PLAY.**

PLAY ▶

The DVD player resumes playback from the location where you stopped playback.

■ To start playback from the beginning regardless of the location where you stopped playback

1 Press **STOP** twice.

STOP ■

The DVD player effaces the memory of the location.

2 Press **PLAY**.

PLAY ▶

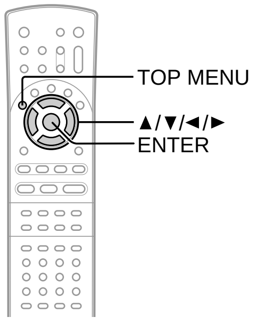
DVD-V	Playback starts from the beginning of the current title.
DVD-A	Playback starts from the beginning of the current group.
VCD CD	Playback starts from the beginning of the disc.

- If you want to return to the beginning of a DVD video/audio disc, open and close the disc tray once with the OPEN/CLOSE button before pressing the PLAY button.

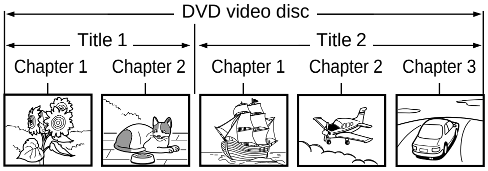
Notes

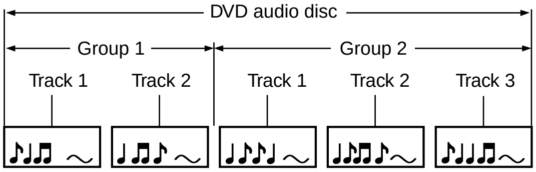
- Resuming cannot function when:
  - you change the parental lock setting 65 or select a disc menu language 63.
  - you play a PBC-featured VIDEO CD while “PBC” 66 is set to “On.”
  - you open the disc tray.
- There may be a difference in the location where playback resumes depending on the disc. Especially when using a DVD audio disc, playback may resume from the beginning of the current track.
- Settings you changed using the on-screen displays while the DVD player keeps a location in the memory may function only after the memory is cleared.

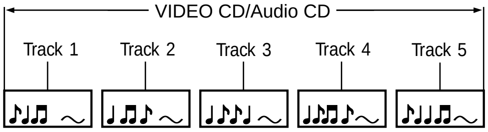
Locating a Desired Section


TOP MENU
▲/▼/◄/►
ENTER

Normally, DVD video discs are divided into titles, and the titles are sub-divided into chapters. DVD audio discs are divided into groups, and the groups are sub-divided into tracks. VIDEO CDs and audio CDs are divided into tracks. You can quickly locate any specific title, chapter, group, or track.


DVD video disc
Title 1
Title 2
Chapter 1
Chapter 2
Chapter 1
Chapter 2
Chapter 3

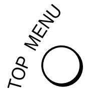

DVD audio disc
Group 1
Group 2
Track 1
Track 2
Track 1
Track 2
Track 3


VIDEO CD/Audio CD
Track 1
Track 2
Track 3
Track 4
Track 5

DVD-V DVD-A VCD CD

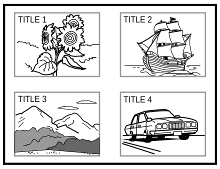
Locating a title using the top menu

1 Press TOP MENU.

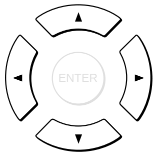


The top menu appears on the TV screen.

e.g.

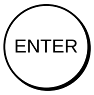

TITLE 1
TITLE 2
TITLE 3
TITLE 4

2 Press ▲ / ▼ / ◄ / ► to select the title you want.



If the titles in the top menu are assigned a number, you can directly locate a specific title by pressing its designated number with the number buttons.

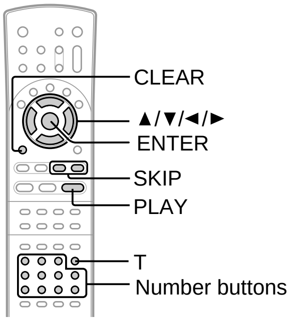
3 Press ENTER.



Playback starts from chapter 1 of the selected title.

Notes

- The instructions above describe basic procedures which may vary depending on the contents of the DVD video disc. If different instructions appear on the TV screen, follow those instructions.
- If you display the top menu during playback and press the TOP MENU button again without selecting any title, the DVD player may resume playback from the point where you first pressed the TOP MENU button (depending on the actual DVD video disc.)
  When using a DVD audio disc, the DVD player resumes playback from the beginning of the track where you pressed the TOP MENU button.
- This method of locating a title is available only on a disc that contains a top menu.
- Instruction notes of discs may refer to the button that displays the top menu as TITLE button.

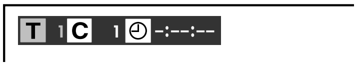


DVD-V DVD-A VCD CD Locating a desired section by entering the corresponding number

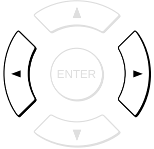
1 **Press T.**

If you are using a VIDEO CD/audio CD, skip steps 1 and 2. Then at step 3, enter the number for the track you want using the number buttons.

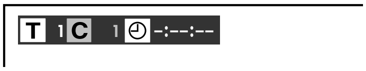
e.g. DVD-V



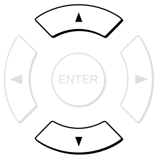
2 **Press ◄ / ► to select a section you want to locate.**



e.g. When you want to locate a chapter.



3 **Press ▲ / ▼ to enter a number of the section.**



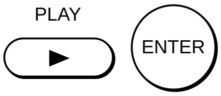
Also the number buttons are available.

e.g. To enter 25

② → ⑤ or +10 → +10 → ⑤

4 **Repeat steps 2 and 3 if necessary.**

5 **Press PLAY or ENTER.**



Playback starts from the selected section.

Notes

- Pressing the CLEAR button resets the numbers. To clear the display, press the T button several times.
- This method of locating a title/group is available only on a disc that contains title/group numbers.

■ Playing bonus groups of DVD audio discs

Some DVD audio discs may include an extra content called “Bonus group”.
If you select it to play, a display appears to enter a key number. Press the **number buttons** to enter the key number, then press **ENTER**.
When the number is entered correctly, playback of the bonus group starts.
To get key numbers, refer to instruction notes of discs.

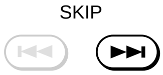
Notes

- A key number may be cleared in some cases such as when removing the disc. Enter the key number again if necessary.
- When you use a bonus group in a programmed play such as memory playback, enter the key number beforehand.

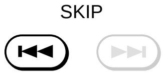
DVD-V DVD-A VCD CD Locating a specific chapter or track

Press SKIP ⏮ or ⏭ repeatedly to display the chapter or track number you want.

Playback starts from the selected chapter or track.



To locate succeeding chapters or tracks.



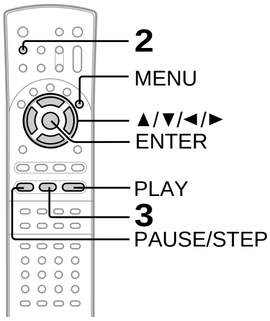
Playback starts from the beginning of the current chapter or track. When you press twice, playback starts from the beginning of the preceding chapter or track.

Notes

- Some titles may not display chapter numbers.
- When you set “Title/Group Stop” to “Off” 66, you can access chapters in another title. If you go back to the preceding title by pressing the SKIP ⏮ button, the DVD player locates the first chapter of the title. When “Title/Group Stop” is set to “On,” you can access chapters only within the current title.
- If you press and hold the SKIP ⏮ or ⏭ button on the front panel during playback, the DVD player performs fast reverse or fast forward playback. You can vary the speed by pressing the button further.
  To locate chapters or tracks during fast reverse or fast forward playback, first press the PLAY button to resume normal playback, then use the SKIP ⏮ or ⏭ button.

Playing an MP3 Encoded CD

You can play MP3 files on this DVD player.



Playing an MP3 encoded CD

MP3 disc compatibility with this player is limited as follows:

- Playable discs: CD-ROM, CD-R (650MB / 74 min. only) CD-RW is not recommendable.
- Sampling Frequency: 44.1 kHz only
- Bit rate 32 kbps-320 kbps
- CD physical format: Mode 1, Mode 2 XA Form 1
- File system: ISO9660 Level 1
- File names are limited to eight characters or less and must incorporate “MP3” extension. e.g.“********.MP3”
- File names cannot contain special characters such as “?!><+*}{`[@]:;\ /.,” etc.
- Total number of files on the disc should not exceed 254.

Preparations

- When you playback an MP3 encoded CD, set “Priority Contents 2” to “ MP3 > JPG ”. 66

1 Place a CD that contains MP3 files on the disc tray.

2 Press OPEN/CLOSE to load the disc.

OPEN/CLOSE

Playback starts.

To start playback from stop mode, press the PLAY button.

3 To stop playback, press STOP.

STOP

■ To pause playback

Press **PAUSE/STEP** during playback.

PAUSE/STEP

To resume normal playback, press the PLAY button.

■ Selecting a track (file) in the disc

1 If a track list is not displayed, press the MENU button to show it.
The current track being played is highlighted in red.
2 Press the ▲ / ▼ / ◄ / ► buttons to select a track you want to play.
The selected track is highlighted in green.
3 Press the ENTER button to begin playback of the selected track.

Notes

- Some discs may not permit this operation.
- If you stop playback by pressing the STOP button, and then press the PLAY button, playback will start from the beginning of the track.
- The SKIP 31, REPEAT 35 and RANDOM 37 functions are also available.

This DVD player requires discs/recordings to meet certain technical standards in order to achieve optimal playback quality. Pre-recorded DVDs are automatically set to these standards. There are many different types of recordable disc formats (including CD-R containing MP3 files). Given the fact that technology in this area is still maturing, Toshiba cannot guarantee that all genre of recordable discs will produce optimal playback quality. The technical criteria set out in this owner’s manual are meant as a guide only.

Customers should also note that permission is required in order to download MP3 files and music from the internet. Toshiba has no right to grant such permission. Permission should always be sought from the copyright owner.

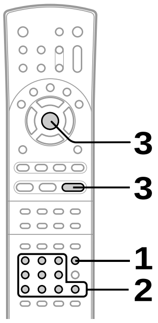
Advanced playback

Customizing the performance of your DVD player.

- **Accessing a Specific Location Directly**
- **Playing Repeatedly**
- **Playing in a Favorite Order**
- **Playing in Random Order**
- **Zooming a Picture**
- **Selecting the Sound Enhancement (E.A.M.)**
- **Selecting the Camera Angle**
- **Selecting Subtitles**
- **Selecting a Language**

Accessing a Specific Location Directly

You can access a specific location by entering its corresponding time (hours, minutes, seconds).



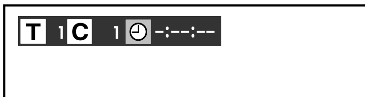
DVD-V DVD-A VCD CD Entering the time counter of the desired location

1 **Press T several times.**

SEARCH
T

You may have to press further depending on the disc. Press the button repeatedly until the clock icon is highlighted.

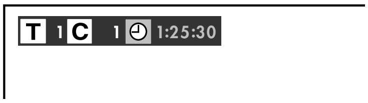
e.g.



2 **Press the number buttons to enter the time.**

e.g.

1 → 2 → 5 → 3 → 0



3 **Press PLAY or ENTER.**

PLAY
►

ENTER

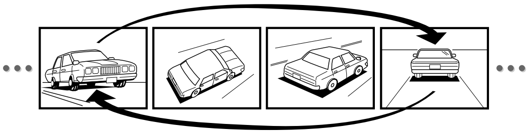
Playback starts from the desired location.

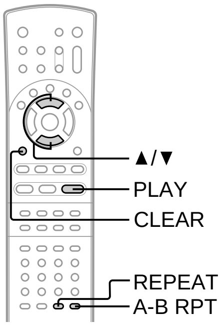
Notes

- Some discs may not respond to this process.
- Some scenes may not be located precisely as you specified.
- This method for accessing specific locations is available only within the current title of the DVD video disc or within the current track of the VIDEO CD/audio CD.

Playing Repeatedly

You can play a specific title, chapter, group, track, or segment repeatedly.





DVD-V DVD-A VCD CD Repeating a title, chapter, group or track

1 Press REPEAT.

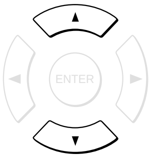
REPEAT

The mode menu appears.

2 Press REPEAT or ▲ / ▼ repeatedly to select the repeat playback mode.

REPEAT

The mode changes as follows (when using the REPEAT button):



DVD-V Chapter Repeat
DVD-A Track Repeat
↓
DVD-V Title Repeat
DVD-A Group Repeat
VCD CD Track Repeat
↓
DVD-V DVD-A VCD CD All Repeat
↓
Repeat off

Chapter Repeat: Repeats the current chapter.
Track Repeat: Repeats the current track.
Title Repeat Repeats the current title.
Group Repeat: Repeats the current group.
All Repeat: Repeats the entire disc.
Repeat Off: Resumes normal playback.

If you select the mode during playback, the DVD player automatically starts repeat playback after finishing the current title, chapter, group or track.

3 Press PLAY.

PLAY ►

The DVD player starts repeat playback.
Press the PLAY button within about 5 seconds after you press the REPEAT button.

■ To resume normal playback

Press **CLEAR**.

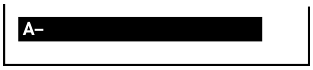
CLEAR

Note
Some discs may not permit repeat operation.

DVD-V DVD-A VCD CD Repeating a specific segment

1 Press A-B RPT at the beginning of the segment (point A) you want to play repeatedly.

A-B RPT

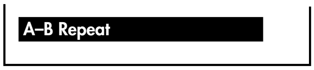


A–

2 Press A-B RPT again at the end of the segment (point B).

A-B RPT

The DVD player automatically returns to point A and starts repeat playback of the selected segment (A-B).



A–B Repeat

■ To resume normal playback

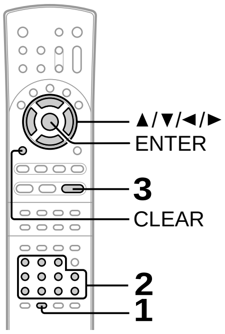
Press **CLEAR**.

CLEAR

Notes
- Some discs may not permit A-B repeat operation.
- You cannot set the A-B repeat function for a segment that includes multiple camera angles 40.
- You can specify a segment only within the current title.
- There may be a slight difference between point A and the location where playback actually resumes depending on the disc.

Playing in a Favorite Order

You can combine your favorite titles, chapters, groups, or tracks and play them in the order you determine. You can program up to 30 selections into the memory. (Memory playback)

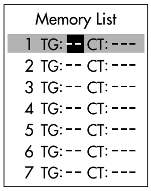


DVD-V DVD-A VCD CD Setting titles, chapters, groups or tracks in a favorite order

1 Insert a disc and press MEMORY during stop.

MEMORY

The following display appears.


Memory List
1 TG: -- CT: ---
2 TG: -- CT: ---
3 TG: -- CT: ---
4 TG: -- CT: ---
5 TG: -- CT: ---
6 TG: -- CT: ---
7 TG: -- CT: ---

TG: Title number or group number
CT: Chapter number or track number

2 Select the items in the order you want by pressing the number buttons, then ENTER for each item.

Each time you press the ◄ / ► buttons, the spaces of “TG” and “CT” are highlighted in turn. Highlight where you want to enter, then press the corresponding number buttons.

To select another chapter in the same title, you do not need to select the title number.
To select another track in the same group, you do not need to select the group number.

To select tracks from a VIDEO CD/audio CD in order, press the **number buttons** for the track, then press the **ENTER** button for each selection you want.

3 Press PLAY while the display appears on the TV screen.

PLAY

The DVD player starts memory playback.

■ To change the programmed selections

1. While the display appears on the TV screen, press the ▲ / ▼ / ◄ / ► buttons to highlight the item you want to change.
2. Change the selection following the instructions in step **2**.

■ To cancel the programmed selections

1. While the display appears on the TV screen, press the ▲ / ▼ / ◄ / ► buttons to highlight the item you want to cancel.
2. Press **CLEAR**.

■ To resume normal playback from memory playback

Press **CLEAR**.

CLEAR

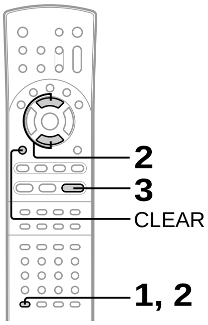
The memory playback indicator disappears.

Notes

- Some discs may not permit memory playback operation.
- If you press the REPEAT button during memory playback, the DVD player repeats the current memory playback.
- If you press the MEMORY or RETURN button while the display appears on the TV screen, the display disappears.
- The programmed selections will be cleared when:
  - – you turn off the DVD player.
  - – you open the disc tray.

Playing in Random Order

You can play titles, chapters, groups or tracks in random order.
(Random playback)



DVD-V DVD-A VCD CD Playing titles, chapters, groups or tracks in random order

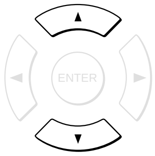
1 Press RANDOM.

RANDOM

The mode menu appears.

2 Press RANDOM or ▲ / ▼ repeatedly to select the random playback mode.

RANDOM



The mode changes as follows (when using the RANDOM button):

DVD-V	Chapter Random	Plays the chapters within the current title in random order.
DVD-A	Track Random	Plays the tracks within the current group in random order.
↓		
DVD-V	Title Random	Plays the titles in random order.
DVD-A	Group Random	Plays groups in random order.
VCD	Track Random	Plays the tracks in random order.
CD	Track Random	Plays the tracks in random order.
↓		
Random Off		Resumes normal playback.

If you select the mode during playback, the DVD player automatically starts random playback after finishing the current title, chapter, group or track.

3 Press PLAY.

PLAY ►

The DVD player starts random playback.
Press the PLAY button within about 5 seconds after you press the RANDOM button.

■ **To resume normal playback**

Press **CLEAR**.

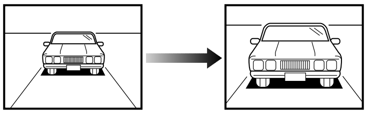
CLEAR

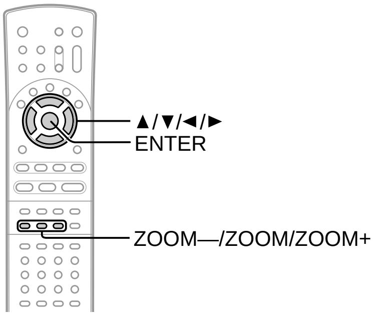
Notes

- Some discs may not permit random playback operation.
- You cannot use the random playback function in conjunction with the memory playback function.

Zooming a Picture

You can magnify areas within a picture.





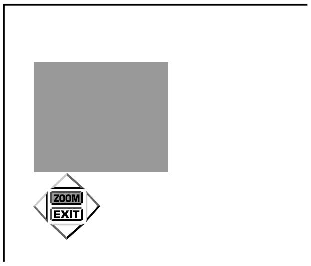
DVD-V DVD-A VCD CD

Zooming a picture

1 During normal, slow or still playback, press ZOOM, ZOOM+ or ZOOM–.

The DVD player enters the zoom playback mode, and a monitor scope and an icon appear.

e.g.

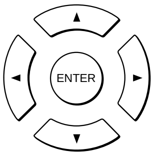


2 Select the zoom point and magnification level.

Magnification level

- To use the fixed levels:
  You can select from the followings.
  – Magnification
  – Image reduction
  – Normal playback

Press the **ZOOM** button repeatedly.



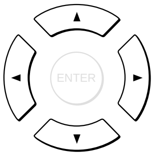
Alternatively press the ▲ / ▼ / ◄ / ► buttons to select “ZOOM” on the icon, and press the **ENTER** button repeatedly.

- To zoom in (or to zoom out):

Press repeatedly or press and hold the **ZOOM+** (or **ZOOM–**) button.

Zoom point

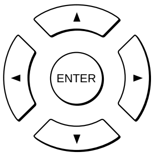
To shift:



Press the ▲ / ▼ / ◄ / ► buttons.

■ To hide the monitor scope and the icon during zoom playback

Press ▲ / ▼ / ◄ / ► to select “EXIT,” and press **ENTER**.



■ To resume normal playback

Press **ZOOM** repeatedly until the monitor scope and the icon disappear.

Alternatively press the ▲ / ▼ / ◄ / ► buttons to select “ZOOM” on the icon, and press **ENTER** repeatedly until the monitor scope and the icon disappear.

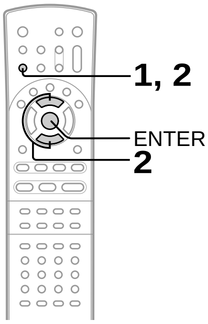
Notes

- Some discs may not respond to zoom feature.
- During some scenes, the buttons may not work as described.
- Zooming does not work on subtitles or menus included on DVD video discs.
- While the icon is displayed, the ▲ / ▼ / ◄ / ►/ENTER buttons cannot work on menus included on DVD video discs. If you want to view the menus, cancel the zoom playback.
- The magnification level varies depending on the picture size you select. 59
- When using a DVD audio disc that includes pictures, this operation may be permitted in some picture segments.

Selecting the Sound Enhancement (E.A.M.)*

You can easily switch the sound enhancement to your preference.

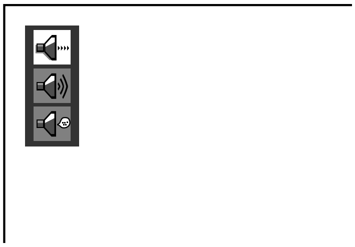
*E.A.M.: Enhanced Audio Mode



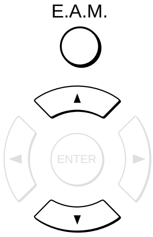
DVD-V DVD-A VCD CD Selecting the sound enhancement

1 Press E.A.M.

The sound enhancement selection appears.



2 Press E.A.M. or ▲ / ▼ repeatedly to select the sound enhancement.



Normal:

Normal sound.

3D:

To obtain expansive virtual surround sound effects from just two speakers.

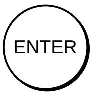
Dialogue:

To control dynamic range to make dialogues easier to hear (only when playing a DVD video disc recorded on the Dolby Digital recording system).

- To use this enhancement on sounds output from the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack, be sure to set “Analog Output” to “Stereo” 61 and “Digital Output” to “PCM”. 62

■ To turn off the audio enhancement selection

Press **ENTER**.



Alternatively leave the DVD player unoperated for about 5 seconds after having made the selection.

Notes

- Actual effects to sounds may vary depending on the speakers. Make the selection to your preference.
- Actual effects to sounds may vary depending on the disc.
- When the DVD player is connected to an amplifier equipped with Dolby Surround Pro Logic, select “Normal”. Otherwise, Dolby Surround Pro Logic may function differently than usual.
- Selecting “Dialogue” disables “Dynamic Range Control” function 62.
- When “Analog Output” 61 is set to “Multi,” “3D” is ineffective.

Spatializer® 3-Dimensional Sound Processing provided by Desper Products. Inc.
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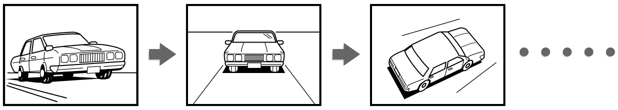
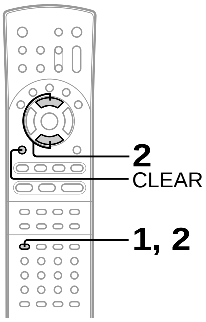
Selecting the Camera Angle

If the scene was recorded from multiple angles, you can easily change the camera angle of the scene you are watching.





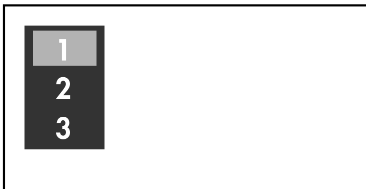
DVD-V DVD-A VCD CD Changing the camera angle

1 Press ANGLE while playing a scene recorded with multiple angles.

ANGLE

While playing a scene recorded with multiple angles, the angle icon (🎥) flashes in the DVD display.
Press the ANGLE button while the angle icon is flashing.

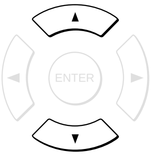
e.g.



2 Press ANGLE or ▲ / ▼ while the angle number is displayed on the TV screen.

ANGLE

Each time you press the ANGLE button or the ▲ / ▼ buttons, the camera angle changes.



You can change the camera angle also by pressing the number buttons corresponding to its angle number.

■ **To turn off the angle number display**

Press **CLEAR**.

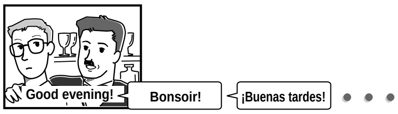
CLEAR

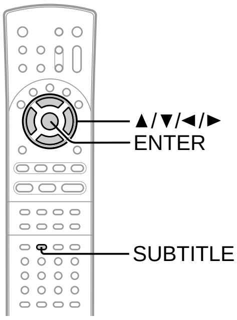
Notes

- You can change the camera angle during still playback. The camera angle changes to the new setting when you resume normal playback.
- If you pause a picture immediately after changing a camera angle, the resumed playback picture may not display the new camera angle.
- When using a DVD audio disc that includes pictures recorded from multiple angles, this operation may be permitted in some picture segments.

Selecting Subtitles

You can display subtitles on the TV screen and select a subtitle language from those included on the DVD video disc.

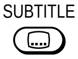

Good evening!
Bonsoir!
¡Buenas tardes!



DVD-V DVD-A VCD CD

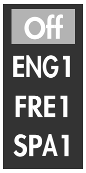
Selecting a subtitle language

1 Press SUBTITLE during playback.



The current subtitle setting is displayed.

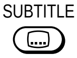
e.g.

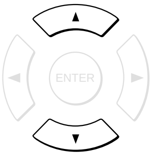


Off
ENG1
FRE1
SPA1

The abbreviation of the language appears instead of the language name. Refer to the list of languages and their abbreviations. 68

2 Press SUBTITLE or ▲ / ▼ while the subtitle setting is displayed on the TV screen.



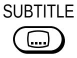


Each time you press the SUBTITLE button or the ▲ / ▼ buttons, the subtitle languages included on the DVD video disc change.

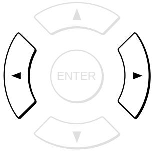
To turn off the subtitle setting display, press the ENTER button.

■ To turn subtitles on or off

1 Press **SUBTITLE** during playback.



2 Press ◄ / ► while the subtitle setting is displayed on the TV screen, to select “On” or “Off.”



Notes

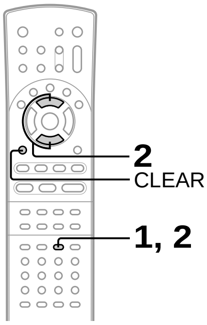
- Some DVD video discs are set to display subtitles automatically, and you cannot turn them off even if you set the subtitle function to off.
- During some scenes, the subtitles may not appear immediately after you select “On.”
- Some DVD video discs will allow you to make subtitle selections and turn subtitles on or off only via the disc menu.

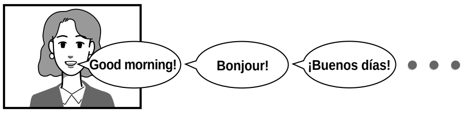
Notes

- When you turn on the DVD player or replace a disc, the player returns to the initial default setting 63.
  When you select a subtitle language which is not included on the disc, the DVD player plays a prior language programmed on the disc.
- During some scenes, the subtitles may not appear immediately after you change the subtitle language.
- When using a DVD audio disc that includes pictures accompanied with subtitles, this operation may be permitted in some picture segments.

Selecting a Language

You can select a preferred language and sound recording system from those included on the disc.




Good morning!
Bonjour!
¡Buenos días!
● ● ●

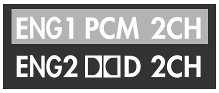
DVD-V DVD-A VCD CD Selecting a playback audio setting

1 Press AUDIO during playback.

AUDIO

The current audio setting is displayed.

e.g.

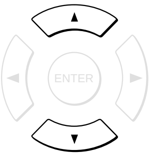


ENG1 PCM 2CH
ENG2 ◻◻D 2CH

The abbreviation of the language appears instead of the language name. Refer to the list of languages and their abbreviations. 68

2 Press AUDIO or ▲ / ▼ while the audio setting is displayed on the TV screen.

AUDIO



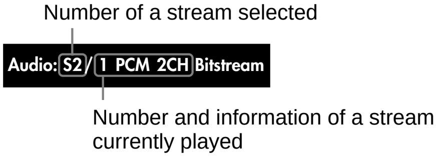
Each time you press the AUDIO button or the ▲ / ▼ buttons, the audio settings included on the disc change.

To turn off the audio setting display, press the CLEAR button.

■ Selecting audio streams of DVD audio discs

During playback, perform steps 1 and 2. At step 2, you can switch streams 1 and 2.

e.g.



Audio: S2/ 1 PCM 2CH Bitstream

Number of a stream selected
Number and information of a stream currently played

If a DVD audio disc does not include a stream you have selected, the DVD player plays another stream.

■ Selecting sound channels of VIDEO CDs

You can switch left and right channels by pressing the **AUDIO** button repeatedly during playback.

AUDIO

Notes

- When you turn on the DVD player or replace a disc, player returns to the initial default setting 63.
  If you select a sound track which is not included on the disc, the DVD player plays a prior sound track programmed on the disc.
- Some discs allow you to change audio selections only via the disc menu. If this is the case, press the MENU button and choose the appropriate language from the selections on the disc menu.
- When you change the audio setting during playback of a DVD audio disc, playback may return to the beginning of the current track.

■ Output sound conversion table

Output / Input			Multi channel sounds			2 channel stereo sounds		
			BITSTREAM/PCM jack	5.1CH AUDIO ANALOG OUT Jacks		BITSTREAM/PCM jack		2CH AUDIO ANALOG OUT Jacks
			“Digital Output” 56 62	“DD Pro Logic” 56 61		“Digital Output” 56 62		
			—	“On”	“Off”	“Bitstream”	“PCM”	
DVD video disc	Dolby Digital	Stereo	Bitstream	Pro Logic	○	Bitstream	▨ PCM	▨ ○
		Multi	Bitstream	○	○	Bitstream	▨ PCM	▨ ○
	Linear PCM		PCM	Pro Logic	○	▨ PCM	▨ PCM	▨ ○
	DTS	Bitstream	Bitstream	—	—	Bitstream	Bitstream	—
	MPEG1, MPEG2	Stereo	Bitstream	Pro Logic	○	Bitstream	▨ PCM	▨ ○
		Multi	Bitstream	○	○	Bitstream	▨ PCM	▨ ○
DVD audio disc (LPCM, PPCM)			—	○	○	PCM	PCM	○
VIDEO CD			PCM	Pro Logic	○	▨ PCM	▨ PCM	▨ ○
Audio CD	Linear PCM 44.1 kHz/16 bit		PCM	Pro Logic	○	PCM	PCM	▨ ○
	DTS	No decode	Bitstream	Noise	Noise	Bitstream	Bitstream	Noise
MP3			PCM	○	○	PCM	PCM	○

▨ : 3D sound enhancement can function.

- When “Multi” is selected 61, the format of output signals from the BITSTREAM/PCM jack is fixed as shown in the above table, regardless of “Digital Output” setting 62.
- Some of multi-channel recorded DVD audio discs may not be permitted 2-channel mix playback. If you play such a disc on this player connecting two speakers, you may obtain only the original left and right channel sound, and may not hear other channels. This is because of the playback restriction of the disc. Refer to instructions of the disc for details. Such discs may include the same contents recorded in stereo. Play it if available, by changing the audio setting.
- Signals of 88.2 kHz or higher from the BITSTREAM/PCM jack are depressed to 44.1 kHz or 48 kHz by down sampling process when:
  – “3D” is selected. 39
  – “PCM Down Sampling” is set to “On.” 60
  – a copyright protected disc is played.
  – “DD Pro Logic” is set to “On.” 61
- Quantization bit of signals of 20 bit or higher which is output from the BITSTREAM/PCM jack is 16 bit if they are in a copyright protected disc.

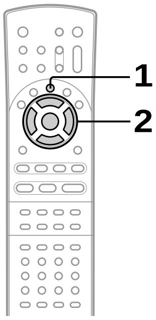
Quick control

Simple use of a single button and the direction buttons enables you to direct your playback, without manipulating many actual buttons.

- **Using the Graphic Remote Control - V-REMOTE -**
- **Selecting the Playback Function - QUICK -**
- **Accessing Features - NAVI -**

Using the Graphic Remote Control
- V-REMOTE -

Pressing one button can display a graphics based on-screen remote control that allows you to control playback as if you were doing it from the actual remote control.



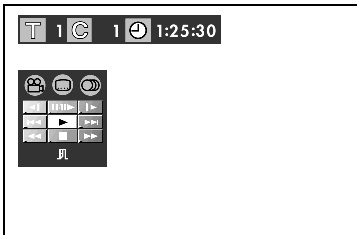
DVD-V DVD-A VCD CD Using the graphic remote control

1 **During playback, press V-REMOTE.**

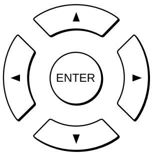
V-REMOTE ○

The graphic remote control (Virtual Remote) appears.
For the meaning of each icon, see right.

e.g. DVD-V



2 **Press ▲ / ▼ / ◄ / ► to select the icon, and press ENTER.**



■ **To turn off the Virtual Remote**

Press **V-REMOTE**.

V-REMOTE ○

Note
Some discs may not permit this operation.

■ **Icons and features**

See the pages in ☐ for details on the features.

Icon	Function	Page
T*	Current title/track number	–
G*	Current group number	–
C*	Current chapter number	–
◷*	Elapsed time of the current title/track	–
◎**	Audio setting	42
▭**	Subtitle setting	41
🎥**	Angle setting	40
◄I	Reverse slow motion playback	29
II/II►	Pause / Frame by frame playback	28
I►	To begin slow motion playback	29
I◄◄	Playback starts from the beginning of the current chapter or track.	31
►	Normal playback	26
►►I	To locate succeeding chapters or tracks.	31
◄◄	Fast reverse playback	28
■	To stop playback.	27
►►	Fast forward playback	28
⎍	To turn off the Virtual Remote.	

* You can access a desired location. After step 2, perform the steps below:

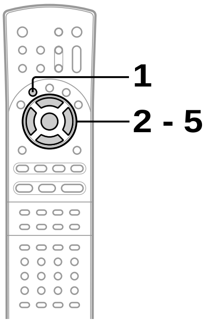
T / G / C : steps 3 to 5 on 31

◷ : steps 2 and 3 on 34

** After step 2, a sub menu will appear. Perform step 2 on the page in ☐.

Selecting the Playback Function - QUICK -

Pressing one button can display a list of playback functions which are relevant to your current playback mode. You can check and modify them from the list.

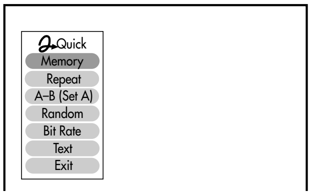


DVD-V DVD-A VCD CD Selecting the playback function

1 During playback, press QUICK.

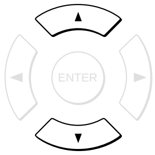
The following on-screen display appears.
(The actual display will vary depending on the playback status.)

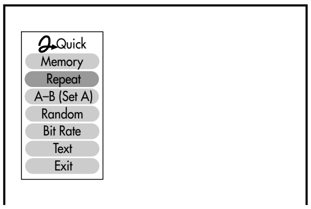
e.g. DVD-V


Quick
Memory
Repeat
A–B (Set A)
Random
Bit Rate
Text
Exit

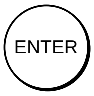
2 Press ▲ / ▼ to select a desired item.

e.g. To change the repeat mode:

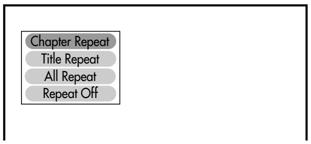



Quick
Memory
Repeat
A–B (Set A)
Random
Bit Rate
Text
Exit

3 Press ENTER.

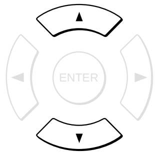


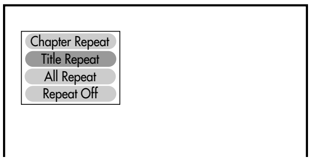
e.g. The mode menu appears.


Chapter Repeat
Title Repeat
All Repeat
Repeat Off

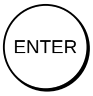
4 Press ▲ / ▼ to change the setting.

e.g. To select the title repeat mode:




Chapter Repeat
Title Repeat
All Repeat
Repeat Off

5 Press ENTER.



The on-screen display disappears and playback will resume according to your selection.

■ Quick menu

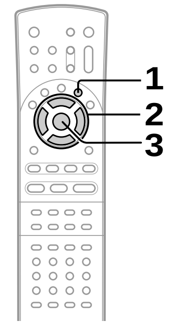
Memory :	To program memory playback. 36
Repeat :	To select the repeat playback mode. For the mode selections, see page 35.
A-B (Set A) :	At the beginning of a segment you want to repeat, press the ENTER button. Then at the end of the segment, press the ENTER button again. The segment is played repeatedly. 35
Random :	To select the random playback mode. For the mode selections, see page 37.
Bit Rate :	To activate the bitrate display. (Bit rate: data transfer rate (Mbit/s) Amount of picture, sound and subtitle data in the DVD video disc transferred per second. The larger the value, the more data processed, but this does not necessarily insure better picture quality.)
Text :	To activate the Text display. Text display: Displays DVD-Text data or CD-Text data if included on the disc. When playing a DVD audio disc, displays Album Text data if included on the disc. However, Track Text data is not displayed. (Some content on the disc may not be displayed properly depending on the disc.)
Exit :	To quit the on-screen display.

Note

Pressing the QUICK button again also exits the on-screen display.

Accessing Features - NAVI -

The NAVI menu provides an icon based display from which you can easily access key playback function or setting.

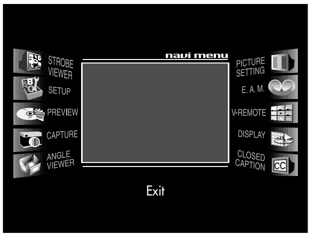


DVD-V DVD-A VCD CD NAVI menu items

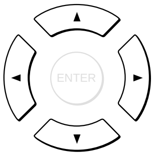
1 **Press NAVI.**

The NAVI menu appears.

e.g. DVD-V

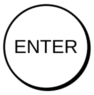

navi menu
STROBE VIEWER
SETUP
PREVIEW
CAPTURE
ANGLE VIEWER
PICTURE SETTING
E. A. M.
V-REMOTE
DISPLAY
CLOSED CAPTION
CC
Exit

2 **Press ▲ / ▼ / ◄ / ► to select a desired feature icon.**



For details on each feature, refer to the list on the next page.

3 **Press ENTER.**



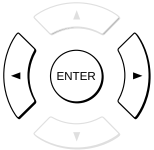
Selection details appears.

4 **Refer to the list on the next page and follow the instructions detailed on subsequent pages.**

■ **To exit the NAVI menu**

Press **NAVI**.

Alternatively press ◄ / ► to remove the highlight from an icon to the center position, and press **ENTER**.



Note

Depending on the disc, some features cannot be accessed.

Navi menu selections

STROBE VIEWER	You can divide a desired scene into stop action frames for careful analysis.	50
SETUP	You can change the default settings to customize performance to your preference.	56
PREVIEW	You can display thumbnail views of the first scenes of titles or chapters and select a preferred one.	50
CAPTURE	You can sample a scene from a playback picture and transform it into a background picture.	51
ANGLE VIEWER	You can display all camera angles simultaneously and select your preferred one from them.	51
PICTURE SETTING	You can fine adjust picture quality and store up to 3 custom picture settings in the memory of the DVD player.	52
E.A.M.	You can easily switch a preferred audio enhancement.	39
V-REMOTE	You can control key playback functions using the graphics based on-screen remote control.	46
DISPLAY	You can view information about a disc and its operational status on the TV screen.	53
CLOSED CAPTION	You can display closed caption included on a DVD disc without connecting a closed caption decoder to your TV.	53

Accessing Features - NAVI - (continued)

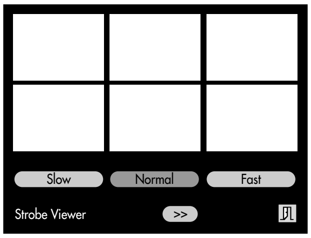
NAVI menu items

STROBE VIEWER

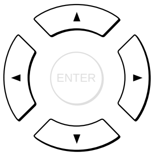
You can divide a desired scene into stop action frames for careful analysis.

After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.

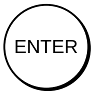


1 Press ▲ / ▼ / ◄ / ► to select.



Slow:	Still pictures at shorter intervals.
Normal:	Still pictures at normal intervals.
Fast:	Still pictures at longer intervals.
>>:	To view the next series of 6 pictures.
卂 :	To quit the on-screen display.

2 Press **ENTER**.



Note

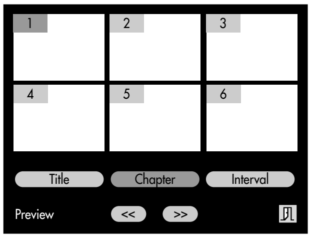
Some discs or scenes may not permit this operation.

PREVIEW

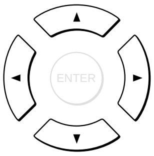
You can display thumbnail views of the first scenes of titles or chapters and select a preferred one.

After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.

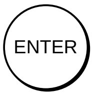


1 Press ▲ / ▼ / ◄ / ► to select.



1 - 6:	To locate the scene.
Title:	To display the first scenes of titles (1 to 6).
Chapter:	To display the first scenes of chapters (1 to 6).
Interval:	To display scenes at intervals of about 10 minutes apart.
<< :	To go to the previous page.
>> :	To go to the next page.
卂 :	To quit the on-screen display.

2 Press **ENTER**.



Notes

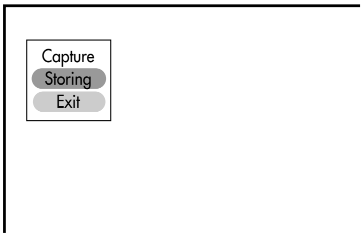
- Some discs or scenes may not permit this operation.
- Some items may not be selected depending on the disc or scene.
- Some of the first scenes may not picked up depending on the disc.

CAPTURE

You can sample a scene from a playback picture and transform it into a background picture.

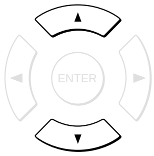
After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



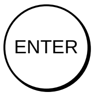
1 Pause playback at a scene you want to capture.

2 Press ▲ / ▼ to select.



Storing: To sample and store the current picture in the player memory.
Exit: To quit the on-screen display.

3 Press **ENTER**.



The stored picture will be displayed as a background picture when the player is in the stop mode. It is necessary to confirm this process via the setup menu 64.

Notes

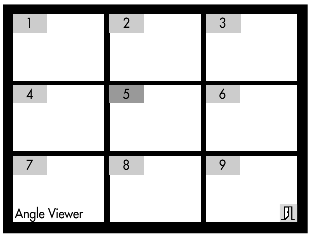
- You can store only one picture. Storing a new picture will erase the old one.
- No operations are permitted in process of sampling and storage of background picture.
- Some discs or scenes may not permit this operation.

ANGLE VIEWER

You can display all camera angles simultaneously and select your preferred one from them.

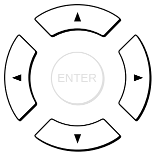
After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



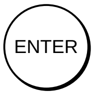
When the scene contains 9 camera angles:

1 Press ▲ / ▼ / ◄ / ► to select.



1-9 : To select the camera angle.
🚪 : To quit the on-screen display.

2 Press **ENTER**.

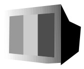


Note
Some discs or scenes may not permit this operation.

Accessing Features - NAVI - (continued)

NAVI menu items

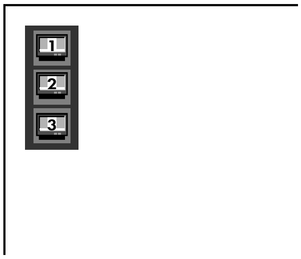
PICTURE SETTING



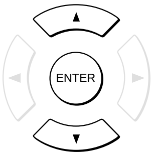
You can fine adjust picture quality and store up to 3 custom picture settings in the memory of the DVD player.

After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



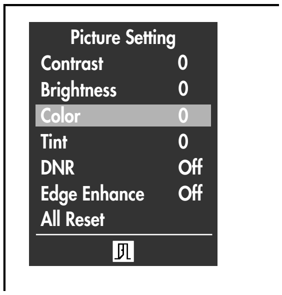
1 Press ▲ / ▼ to select, and press **ENTER**.



1, 2, 3: Select the desired custom memory number. (Follow steps 2 to 4 below.)

2 Press ▲ / ▼ to select the element.

e.g. When you select “Color”:

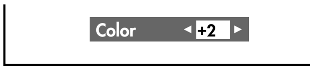


Picture Setting
Contrast 0
Brightness 0
Color 0
Tint 0
DNR Off
Edge Enhance Off
All Reset

3 Press **ENTER**.
The sub menu appears.

4 Press ◄ / ► to adjust the value, and press **ENTER**.

e.g.



Color ◄ +2 ►

Contrast : -7 (Lower) to +7 (Higher)
Brightness : 0 (Darker) to +14 (Brighter)
Color: -7 (Duller) to +7 (Brighter)
Tint : -7 (Redder) to +7 (Greener)
DNR[*1] : On / Off
Edge Enhance[*2] : On / Off
All Reset : To restore all the elements to the normal setting. A message will appear. Follow the procedure displayed on-screen.

[*1]: DNR: Digital Noise Reduction.
To view a picture with less video noise.

Notes
- Actual picture enhancement may vary depending on the quality of the disc.
- While the DNR feature can provide additional improvement in the reduction of noise in the video signal, it may produce undesirable picture artifacts on some discs.
- Depending on the disc, some kinds of picture details may be lost by the picture enhancement.

[*2]: To enhance picture edges.

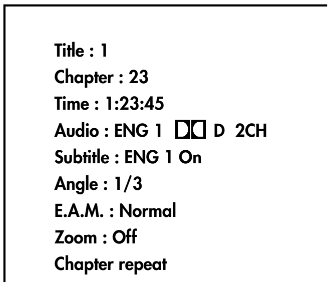
Notes
- The Tint adjustment is not available when connecting to a TV via the component video jacks (Y, PB, PR).
- The Tint adjustment is not available when playing a PAL disc.

DISPLAY

You can view information about a disc and its operational status on the TV screen.

After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



Title : 1
Chapter : 23
Time : 1:23:45
Audio : ENG 1 DD D 2CH
Subtitle : ENG 1 On
Angle : 1/3
E.A.M. : Normal
Zoom : Off
Chapter repeat

To quit the on-screen display, press **ENTER**.

Notes

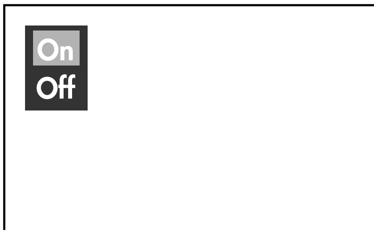
- Some discs or scenes may not permit this operation.
- When playing a DVD audio disc, the area may show the sound recording system (sampling frequency and quantization bit) of the disc, and the corresponding speakers using the following symbols.
  C (mono):
  Recorded in monaural.
  L, R:
  (L: Left, R: Right)
  Recorded in 2ch stereo.
  Lf, Rf, C, LFE, S, Ls, Rs:
  (Lf: Left front, Rf: Right front, C: Center,
  LFE: Subwoofer, S: Surround,
  Ls: Left surround, Rs: Right surround)
  Recorded in multi-channel.

CLOSED CAPTION

You can display closed caption included on a DVD disc without connecting a closed caption decoder to your TV.

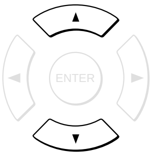
After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



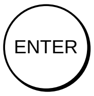
On
Off

1 Press ▲ / ▼ to select.



On : To display closed caption.
Off: To disable closed caption.

2 Press **ENTER**.



Notes

- While you are using on-screen displays (including the above one), you cannot view closed caption.
- When “On” is selected, some displays such as “▷” may be disabled.

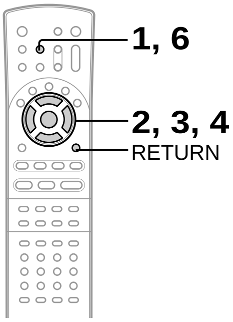
Function Setup

You can change the default settings to customize performance to your preference.

- **Customizing the Function Settings**
- **Table of Languages**

Customizing the Function Settings

You can change the default settings to customize performance to your preference.

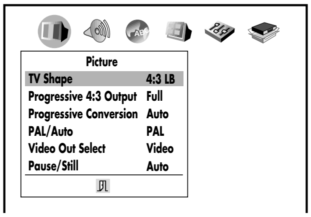


DVD-V DVD-A VCD CD Setting procedure

1 Press SETUP during stop.

SETUP

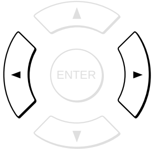
The following on-screen display appears.



Picture	
TV Shape	4:3 LB
Progressive 4:3 Output	Full
Progressive Conversion	Auto
PAL/Auto	PAL
Video Out Select	Video
Pause/Still	Auto

2 Press ◄ / ► to select a symbol for the setting you want to change.

(See the next page.)



Picture performance settings

Output sound settings

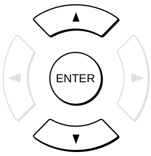
Language settings

Display settings

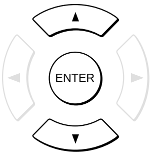
Operational settings

Initializing

3 Press ▲ / ▼ to select the setting you want to change, then press ENTER.



4 Change the selection by ▲ / ▼ or other buttons, by referring to the corresponding pages 59, then press ENTER.



5 Repeat steps 3 and 4 to change other settings.

To select another operation, go back to step 2.

6 Press SETUP.

SETUP

The on-screen display disappears.

■ To return to the previous display

Press **RETURN**.

RETURN

Notes

- The on-screen display disappears also when you select “⎍” and press the ENTER button.
- The SETUP button can function even during normal playback, however some operations may be inaccessible, and a message will appear. In this case, try again after playback is stopped.

Setting		Details	Page
TV Shape	DVD-V	**To select a picture size according to the aspect ratio of your TV.**	**59**
Progressive 4:3 Output	DVD-V VCD	**To select the video output of pictures recorded in 4:3 format. (Only when connected to a PROGRESSIVE TV.)**	**59**
Progressive Conversion	DVD-V	**To select the system of output signal. (Only when connected to a PROGRESSIVE TV.)**	**59**
PAL/Auto	DVD-V VCD	**To select the video system of a disc.**	**60**
Video Out Select	DVD-V VCD	**To select the video output type corresponding to your TV system.**	**60**
Pause/Still	DVD-V	**To select the resolution of still pictures. (Field/Frame)**	**60**
PCM Down Sampling	DVD-V DVD-A	**To select a sound processing option according to performance of the connected equipment. (Only when the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack is connected.)**	**60**
Analog Output	DVD-V DVD-A VCD CD	**To select the output format of analog signal corresponding to your system connection.**	**61**
Digital Output	DVD-V DVD-A VCD CD	**To select the output format of digital signal corresponding to your system connection.**	**62**
Dynamic Range Control	DVD-V	**To turn on or off a function that makes faint sounds easier to hear even if you lower the volume during late hours playback.**	**62**
Karaoke Vocal	DVD-V	**To turn on or off the vocal output during DVD KARAOKE disc playback.**	**62**
On-Screen Language	DVD-V DVD-A VCD CD	**To select a preferred language for on-screen displays.**	**63**
Disc Menu Language	DVD-V	**To select a preferred language for disc menus.**	**63**
Audio Language	DVD-V	**To select a preferred language for the sound track.**	**63**
Subtitle Language	DVD-V	**To select a preferred language for subtitles.**	**63**

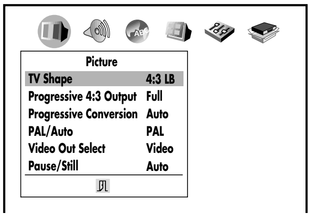
(Continued)

Customizing the Function Settings (continued)

Setting		Details	Page
On-Screen Displays	DVD-V DVD-A VCD CD	**To turn on or de-activate the operational status display on the TV screen.**	**64**
Background	DVD-V DVD-A VCD CD	**To select the background color or background picture.**	**64**
Screen Saver	DVD-V	**To turn the screen saver on or off.**	**64**
Parental Lock	DVD-V	**To turn the parental lock function on or off.**	**65**
Remote Confirmation	DVD-V DVD-A VCD CD	**To turn on or off the confirmation beeper announcing when each remote command received.**	**66**
Title/Group Stop	DVD-V DVD-A	**To turn on or off a feature that automatically stops playback after a title/group has been viewed.**	**66**
PBC	VCD	**To use the menu screen when playing a PBC-controllable VIDEO CD.**	**66**
Priority Contents 1	DVD-V DVD-A	**To select the playback priority between DVD video and DVD audio format signals.**	**66**
Priority Contents 2		**To select the playback priority between JPEG (picture) files and MP3 (audio) files.**	**66**
Initialize	DVD-V DVD-A VCD CD	**To restore all settings to the factory set.**	**67**

- **When using a DVD audio disc that includes pictures, some settings marked DVD-V may be effective.**

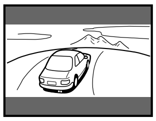
Setting details



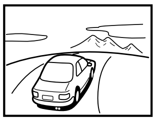
TV Shape	4:3 LB
Progressive 4:3 Output	Full
Progressive Conversion	Auto
PAL/Auto	PAL
Video Out Select	Video
Pause/Still	Auto

TV Shape DVD-V

4:3 Letterbox: Select when a standard 4:3 TV is connected.
Displays theatrical images with masking bars above and below the picture.



4:3 Normal: Select when a standard 4:3 TV is connected.
Displays pictures cropped to fill your TV screen. Either or both sides of the picture are cut off.



16:9 Widescreen: Select when a 16:9 wide TV is connected.

Notes
- The displayable picture size is preset on the DVD video disc. Therefore, the playback picture of some DVD video discs may not conform to the picture size you select.
- When you play DVD video discs recorded in the 4:3 picture size only, the playback picture always appears in the 4:3 picture size regardless of the TV shape setting.
- If you select “16:9 Widescreen” and you own a 4:3 TV set, the DVD playback picture will be horizontally distorted during playback. Images will appear to be horizontally compressed. Always be sure that your TV shape conforms to the actual TV in use.

Progressive 4:3 Output DVD-V VCD

Select the video output of pictures recorded in 4:3 format. (Only when connected to a PROGRESSIVE TV.)

Full: Displays pictures expanded horizontally to fill the 16:9 screen.

4:3: Displays images in 4:3 aspect ratio with masking bars to the left and right of the picture. (Select this option when a connected TV cannot select 4:3 picture size. However, subtitles or menus may not work properly.)

Progressive Conversion DVD-V

There are two types of source content in pictures recorded in DVD video discs: film content (pictures recorded from films at 24 frames per second) and video content (video signals recorded at 30 frames per second). Make this selection according to the type of content being viewed.

Auto: Select this position normally.
The DVD player automatically detects source content, film or video, of playback source, and converts that signal in the progressive output format in an appropriate method.

Video: The DVD player filters video signal, and converts it in the progressive output format appropriately.
Suitable for playback of video content pictures.

Film: The DVD player converts film content pictures in the progressive output format appropriately.
Suitable for playback of film content pictures.
The progressive output feature will be most effective under this selection.

Note
Depending on the disc, pictures may be cut off or doubled. In this case, select “Video.”

Customizing the Function Settings (continued)

Setting details

PAL/Auto DVD-V VCD

PAL: To play a PAL disc. Connect a PAL TV to view a picture.

Auto: The DVD player automatically identifies PAL or NTSC video system of a disc. Connect a multisystem TV (PAL/NTSC compatible) to view a picture.
A playback picture may be distorted when detected a signal change between PAL and NTSC on the disc.

Video Out Select DVD-V VCD

Video: Select when connected to a normal TV. 18

S Video: Select when connected to a TV compatible with S video signals. 18 20

RGB: Select when connected to an RGB monitor. 18

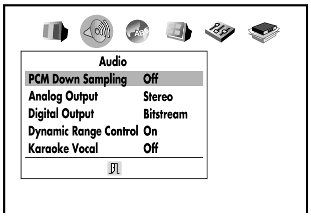
Notes

- When you connect a TV equipped with the component video inputs or a PROGRESSIVE TV (525P (480P)), select “Video” or “S Video”. 19
- If the on-screen display disappears immediately after you select “RGB”, you can restore it by connecting the DVD player using the VIDEO OUT (yellow) jack.

Pause/Still DVD-V

Auto: For normal use. Still and fast motion images can be paused.

Frame: The resolution of still pictures is improved, so that you can make a motionless picture more clearer when you pause it.



Audio

PCM Down Sampling	Off
Analog Output	Stereo
Digital Output	Bitstream
Dynamic Range Control	On
Karaoke Vocal	Off

PCM Down Sampling DVD-V DVD-A

Make this selection only when you use your audio equipment (e.g. receiver) connecting to the DVD player via the BITSTREAM/PCM (DIGITAL) AUDIO OUT jack.

According to performance of your connected receiver, select a sound processing option for playback of a disc that contains high frequency signals (sampling frequency 96 kHz or 88.2 kHz).

On: Select when your connected receiver does not conform to high frequency signals of 88.2 kHz or higher.
The DVD player outputs these signals in a disc depressing the frequencies to 48 kHz or 44.1 kHz.

Off: Select when your connected receiver conforms to high frequency signals of 88.2 kHz or higher.
The DVD player outputs these signals in a disc as they are.

Notes

- Regardless of this setting, the DVD player outputs high frequency signals in a copyright protected disc, depressing to 48 kHz or 44.1 kHz; and outputs those of 176.4 kHz or 192 kHz in a disc with no copyright protection, depressing to 88.2 kHz or 96 kHz.
- If you select “Off” while your connected receiver does not conform to high frequency signals of 88.2 kHz or higher, you cannot hear output sound of those signals.

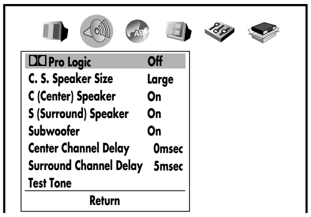
Analog Output DVD-V DVD-A VCD CD

To select the output format of analog signal corresponding to your system connection.
For details of sound recording systems, see 43.

Stereo:	Select when making a connection via the analog audio output (L/R) jacks. 18 19
Multi:	Select when making a connection via the 5.1ch analog audio output jacks. 24 The next screen will detail the appropriate settings.

Note
When you make a connection to a TV, or Dolby Surround Pro Logic or stereo system via the analog audio jacks, select "Stereo."

When you select "Multi":
Make the following settings for the built-in 5.1ch surround decoder.



DD Pro Logic	Off
C. S. Speaker Size	Large
C (Center) Speaker	On
S (Surround) Speaker	On
Subwoofer	On
Center Channel Delay	0msec
Surround Channel Delay	5msec
Test Tone	

1) Select an item by pressing the ▲ / ▼ buttons, and press the ENTER button.

2) Make the settings (see below) by pressing the ▲ / ▼ / ◄ / ► buttons, and press the ENTER button.

DD Pro Logic
Off: Dolby Surround Pro Logic is disabled.
On: Dolby Surround Pro Logic functions.

C. S. Speaker Size
Small: When the center speaker or surround speakers cannot reproduce low frequency signals below 120 Hz.
Large: When the center speaker and surround speakers can reproduce low frequency signals below 120 Hz.

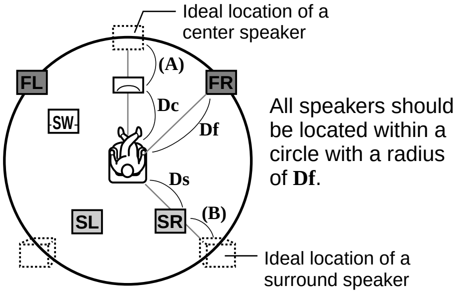
C (Center) Speaker
Off: When center speaker is not connected.
On: When you connect center speaker.

S (Surround) Speaker
Off: When surround speakers are not connected.
On: When you connect surround speakers.

Subwoofer
Off: When a sub woofer is not connected.
On: When you connect a sub woofer.

Note
Depending on the sound in a DVD audio disc, speakers may output each sound of recorded channels, regardless of your settings.

Adjusting the delay time:
When enjoying 5.1ch surround playback, it is ideal to choose a listening position that is the same distance from each speaker. By adjusting the delay time of the center/surround speakers, you can virtually create an ideal listening environment (as if the center/surround speakers were at their ideal locations respectively as below.)


Ideal location of a center speaker
(A)
FL
FR
SW
Dc
Df
Ds
SL
SR
(B)
Ideal location of a surround speaker

All speakers should be located within a circle with a radius of **Df**.

Center Channel Delay
0msec: When **Df** equals **Dc**.
1msec: When **(A)** is approx. 34 cm (13 inch)
2msec: When **(A)** is approx. 68 cm (27 inch)
3msec: When **(A)** is approx. 102 cm (40 inch) . . .
*(A) = Df – Dc
Get your optimum value (0, 1, 2 . . . 5) dividing **(A)** by 34.

(Continued)

Customizing the Function Settings (continued)

Setting details

(Continued)

Surround Channel Delay

0msec: When **Df** equals **Ds**.
1msec: When **(B)** is approx. 34 cm (13 inch)
2msec: When **(B)** is approx. 68 cm (27 inch)
3msec: When **(B)** is approx. 102 cm (40 inch) . . .
***(B) = Df – Ds**
Get your optimum value (0, 1, 2 . . . 15) dividing **(B)** by 34.

Note
Depending on the sound in a DVD audio disc, the DVD player may adjust delay time as “0msec,” regardless of your delay time settings.

3) Select “Test Tone” and press the ENTER button.
The DVD player outputs a test signal to each speaker when it is in stop mode. When playing a DVD video disc, it substitutes the current sound for the test signal.
Press the ◄ / ► buttons to select the receiving speakers, and adjust the volume of each speaker at the same level by pressing the ▲ / ▼ buttons.
If all the volume levels cannot be equalized, adjust them on the amplifier.

Note
Depending on the disc, 6 channel sounds may not be output via the 5.1CH SURROUND AUDIO OUT jacks.

Digital Output DVD-V DVD-A VCD CD

To select the output format of digital signal corresponding to your system connection.
For details of sound recording systems, see 43.

Bitstream: Select when connected to an amplifier equipped with a Dolby Digital, DTS, MPEG1 or MPEG2 decoder. 22 23
The DVD player outputs digital audio information in the bitstream format when you play a DVD video disc recorded on the Dolby Digital, DTS, MPEG1 or MPEG2 recording system.

PCM: Select when connected to a 2 channel digital stereo amplifier. 24
The DVD player outputs sounds in the PCM 2ch format when you play a DVD video disc recorded on the Dolby Digital, MPEG1 or MPEG2 recording system.

Dynamic Range Control DVD-V

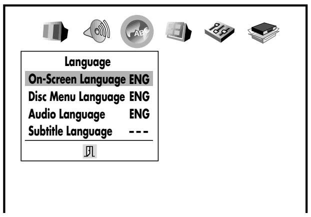
Off: Full dynamic range is maintained.
On: Dynamic range is reduced.

Notes
- This function works only during playback of Dolby Digital recorded discs.
- The level of Dynamic Range Reduction may differ depending on the DVD disc.

Karaoke Vocal DVD-V

Off: The primary vocal is not output.
On: The primary vocal is output when it is recorded on the disc.

Notes
- The vocal output feature is used during playback of Dolby Digital (multi-channel) recorded DVD KARAOKE discs. This feature allows you to turn off vocal audio tracks, or restore them for background accompaniment.
- When playing KARAOKE, connect appropriate audio equipment such as an amplifier to the DVD player.



Language
On-Screen Language ENG
Disc Menu Language ENG
Audio Language ENG
Subtitle Language - - -

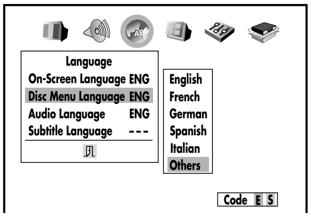
On-Screen Language DVD-V DVD-A VCD CD

English:	To view on-screen displays in English.
Français:	To view on-screen displays in French.
Deutsch:	To view on-screen displays in German.
Español:	To view on-screen displays in Spanish.
Italiano:	To view on-screen displays in Italian.

Disc Menu Language DVD-V

English:	To display disc menus in English.
French:	To display disc menus in French.
German:	To display disc menus in German.
Spanish:	To display disc menus in Spanish.
Italian:	To display disc menus in Italian.
Others:	To make a further choice. After pressing the ENTER button, follow steps 1) - 4) below.

1) Obtain the abbreviation of the preferred language from the list 68.
2) Select the first character by pressing the ▲ / ▼ buttons.
3) Press the ◄ / ► buttons to shift and select the second character by pressing the ▲ / ▼ buttons.



Language
On-Screen Language ENG
Disc Menu Language ENG
Audio Language ENG
Subtitle Language - - -

4) Press the ENTER button.

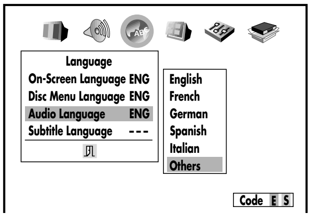
Note

Some DVD video discs may not include your pre-selected language. In this case, the DVD player automatically displays disc menus consistent with the disc's initial language setting.

Audio Language DVD-V

English:	To play sound tracks in English.
French:	To play sound tracks in French.
German:	To play sound tracks in German.
Spanish:	To play sound tracks in Spanish.
Italian:	To play sound tracks in Italian.
Others:	To make a further choice. After pressing the ENTER button, follow steps 1) - 4) below.

1) Obtain the abbreviation of the preferred language from the list 68.
2) Select the first character by pressing the ▲ / ▼ buttons.
3) Press the ◄ / ► buttons to shift and select the second character by pressing the ▲ / ▼ buttons.



Language
On-Screen Language ENG
Disc Menu Language ENG
Audio Language ENG
Subtitle Language - - -

4) Press the ENTER button.

Note

Some DVD video discs may be played in a different language than you selected. A prior language may be programmed on the disc.

Subtitle Language DVD-V

English:	To display subtitles in English.
French:	To display subtitles in French.
German:	To display subtitles in German.
Spanish:	To display subtitles in Spanish.
Italian:	To display subtitles in Italian.
No Subtitle:	To disable subtitles.
Others:	To make a further choice. After pressing the ENTER button, follow steps 1) - 4) below.

1) Obtain the abbreviation of the preferred language from the list 68.
2) Select the first character by pressing the ▲ / ▼ buttons.

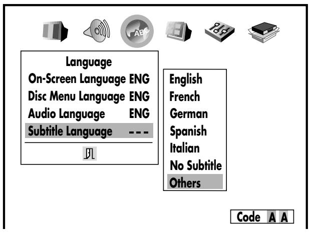
(Continued)

Customizing the Function Settings (continued)

Setting details

(Continued)

3) Press the ◄ / ► buttons to shift and select the second character by pressing the ▲ / ▼ buttons.



Language
On-Screen Language ENG
Disc Menu Language ENG
Audio Language ENG
Subtitle Language - - -

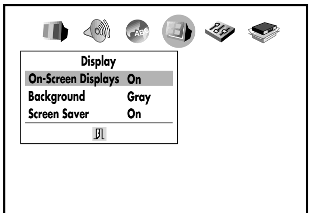
English
French
German
Spanish
Italian
No Subtitle
Others

Code A A

4) Press the ENTER button.

Notes

- Some DVD video discs may be set to display subtitles in a different language than you selected. A prior subtitle language may be programmed on the disc.
- Some DVD video discs allow you to change subtitle selections only via the disc menu. If this is the case, press the MENU button and choose the appropriate subtitle language from the selection on the disc menu.



Display
On-Screen Displays On
Background Gray
Screen Saver On

On-Screen Displays DVD-V DVD-A VCD CD

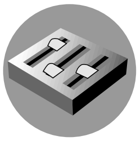
Off: Operational modes (e.g. “❚❚”, “▷▷”) are not displayed.
On: Operational modes (e.g. “❚❚”, “▷▷”) are displayed on-screen.

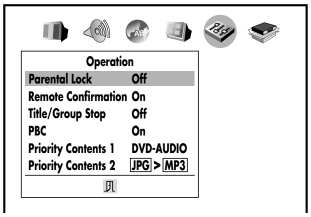
Background DVD-V DVD-A VCD CD

Blue:	Blue background.
Gray:	Gray background.
Capture:	To use a picture you sampled and stored in the memory using the Capture feature 51 as a background.
Jacket:	To use the jacket picture included on some discs as a background. If it is not included, a gray background will be substituted.

Screen Saver DVD-V

Off: The screen saver is disengaged.
On: The screen saver operates.





Operation

Parental Lock Off

Remote Confirmation On

Title/Group Stop Off

PBC On

Priority Contents 1 DVD-AUDIO

Priority Contents 2 JPG > MP3

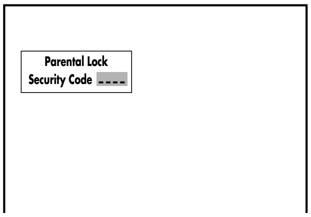
Parental Lock DVD-V

DVD video discs equipped with the parental lock function are rated according to their content. The contents allowed by a parental lock level and the way a DVD video disc can be controlled may vary from disc to disc. For example, if the disc allowed you could edit out violent scenes unsuitable for children and replace them with more suitable scenes, or lock out playback of the disc altogether.

- DVD video discs may or may not respond to the parental lock settings. This is not a defect in the DVD player. Make sure this function works with your DVD video discs.

Off: The parental lock feature does not function. After pressing the ENTER button, follow step 1) below.

On: To activate the parental lock feature or change the settings. After pressing the ENTER button, follow steps 1) - 3) below.



Parental Lock

Security Code ----

1) Press the number buttons to create a personal 4-digit security code, then press the ENTER button.
   If you make a mistake before pressing the ENTER button, press the CLEAR button and enter your 4-digit security code again.

2) Enter the code of a country/area whose standards were used to rate the DVD video disc, referring to the list below.

Country/area	Code
AUSTRALIA	AU
BELGIUM	BE
CANADA	CA
CHINA	CN
CHINA HONG KONG	HK
DENMARK	DK
FINLAND	FI
FRANCE	FR
GERMANY	DE
INDONESIA	ID
ITALY	IT
JAPAN	JP
MALAYSIA	MY
NETHERLANDS	NL
NORWAY	NO
PHILIPPINES	PH
RUSSIAN FEDERATION	RU
SINGAPORE	SG
SPAIN	ES
SWEDEN	SE
SWITZERLAND	CH
TAIWAN	TW
THAILAND	TH
UNITED KINGDOM	GB
UNITED STATES	US

   a) Select the first character by pressing the ▲ / ▼ buttons.
   b) Press the ◄ / ► buttons to shift and select the second character by pressing the ▲ / ▼ buttons.
   c) Press the ENTER button.

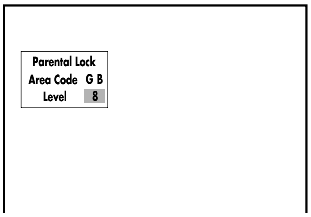
(Continued)

Customizing the Function Settings (continued)

Setting details

(Continued)

3) Pressing the ▲ / ▼ buttons to select the parental lock level, then press the ENTER button.



Parental Lock
Area Code G B
Level 8

You cannot play DVD video discs rated higher than the level you selected unless you cancel the parental lock function.
For example, when you select level 7, discs rated higher than level 7 are locked out and cannot be played.

The parental lock level is equivalent to the following USA movie ratings.

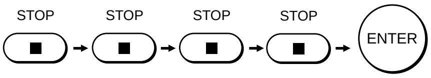
Level 7: NC-17
Level 6: R
Level 4: PG 13
Level 3: PG
Level 1: G

The parental lock levels for other countries/areas than U.S. are included for future use. Check the appropriate parental lock level when you buy a DVD video disc equipped with the parental lock feature in the future.

■ To change the parental lock level
Follow steps 1) - 3).

■ To change your 4-digit security code

1) After selecting “On” or “Off,” press the STOP button four times, then press the ENTER button.



The 4-digit security code is cleared.

2) Press the number buttons to create a new 4-digit security code.
3) Press the ENTER button.

Note
After making the “Parental Lock” setting, the on-screen display will disappear. To make other settings, press the SETUP button again to display them.

Remote Confirmation DVD-V DVD-A VCD CD

Off: The beeper does not sound.
On: The beeper sounds with each remote operation.

Title/Group Stop DVD-V DVD-A

Off: The DVD player continues after playback of a title/group is completed.
On: The DVD player stops after playback of a title/group is completed.

PBC VCD

Off: When playing a VIDEO CD without using the menu.
On: To use the menu when playing a PBC-featured VIDEO CD.

Priority Contents 1 DVD-V DVD-A

Select the playback priority between DVD video and DVD audio format signals when playing a DVD disc that contains both DVD video and DVD audio format signals.

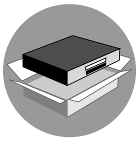
DVD-AUDIO: DVD audio format signals take priority over DVD video format signals.
DVD-VIDEO: DVD video format signals take priority over DVD audio format signals.

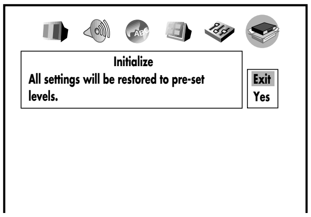
Priority Contents 2

To select the playback priority between JPEG (picture) files and MP3 (audio) files.

JPG > MP3: JPEG files take priority over MP3 files.
MP3 > JPG: MP3 files take priority over JPEG files.

Refer to the separate booklet “Digital Photo Viewer” on how to play a disc containing JPEG format files.





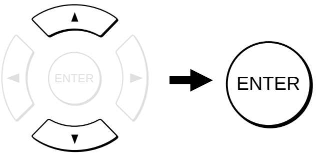
Initialize

All settings will be restored to pre-set levels.

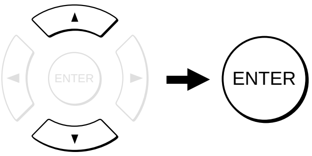
Initialize DVD-V DVD-A VCD CD

To restore all settings to the factory set.

1) Press the ▲ / ▼ buttons to select “Yes,” and press the **ENTER** button.



2) Read the message, and if you really want to restore all settings, press the ▲ / ▼ buttons to select “Yes,” and press the **ENTER** button.



The message of completion appears.

Note

The “Parental Lock” setting is not restored to the factory set.

Table of Languages

Table of languages and their abbreviations

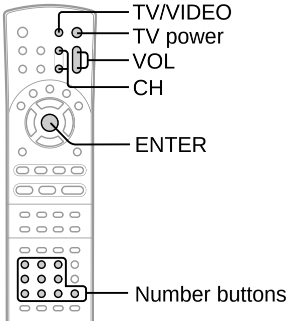
Abbreviation	Language
– – –	No alternate language
CHI (ZH)	Chinese
DUT (NL)	Dutch
ENG (EN)	English
FRE (FR)	French
GER (DE)	German
ITA (IT)	Italian
JPN (JA)	Japanese
KOR (KO)	Korean
MAY (MS)	Malay
SPA (ES)	Spanish
AA	Afar
AB	Abkhazian
AF	Afrikaans
AM	Amharic
AR	Arabic
AS	Assamese
AY	Aymara
AZ	Azerbaijani
BA	Bashkir
BE	Belorussian
BG	Bulgarian
BH	Bihari
BI	Bislama
BN	Bengali, Bangla
BO	Tibetan
BR	Breton
CA	Catalan
CO	Corsican
CS	Czech
CY	Welsh
DA	Danish
DZ	Bhutani
EL	Greek
EO	Esperanto
ET	Estonian
EU	Basque
FA	Persian
FI	Finnish
FJ	Fiji
FO	Faroese
FY	Frisian
GA	Irish
GD	Scottish Gaelic
GL	Galician
GN	Guarani
GU	Gujarati
HA	Hausa
HI	Hindi
HR	Croatian
HU	Hungarian
HY	Armenian
IA	Interlingua
IE	Interlingue
IK	Inupiak
IN	Indonesian
IS	Icelandic
IW	Hebrew
JI	Yiddish
JW	Javanese
KA	Georgian
KK	Kazakh
KL	Greenlandic
KM	Cambodian
KN	Kannada
KS	Kashmiri
KU	Kurdish
KY	Kirghiz
LA	Latin
LN	Lingala
LO	Laotian
LT	Lithuanian
LV	Latvian, Lettish
MG	Malagasy
MI	Maori
MK	Macedonian
ML	Malayalam
MN	Mongolian
MO	Moldavian
MR	Marathi
MT	Maltese
MY	Burmese
NA	Nauru
NE	Nepali
NO	Norwegian
OC	Occitan
OM	(Afan) Oromo
OR	Oriya
PA	Panjabi
PL	Polish
PS	Pashto, Pushto
PT	Portuguese
QU	Quechua
RM	Rhaeto-Romance
RN	Kirundi
RO	Rumanian
RU	Russian
RW	Kinyarwanda
SA	Sanskrit
SD	Sindhi
SG	Sango
SH	Serbo-Croatian
SI	Singhalese
SK	Slovak
SL	Slovenian
SM	Samoan
SN	Shona
SO	Somali
SQ	Albanian
SR	Serbian
SS	Siswati
ST	Sesotho
SU	Sundanese
SV	Swedish
SW	Swahili
TA	Tamil
TE	Telugu
TG	Tajik
TH	Thai
TI	Tigrinya
TK	Turkmen
TL	Tagalog
TN	Setswana
TO	Tongan
TR	Turkish
TS	Tsonga
TT	Tatar
TW	Twi
UK	Ukrainian
UR	Urdu
UZ	Uzbek
VI	Vietnamese
VO	Volapük
WO	Wolof
XH	Xhosa
YO	Yoruba
ZU	Zulu

Others

- Operating a TV with the Remote Control
- Before Calling Service Personnel
- Specifications

Operating a TV with the remote control

You can operate the basic functions of selected TVs using the supplied remote control.



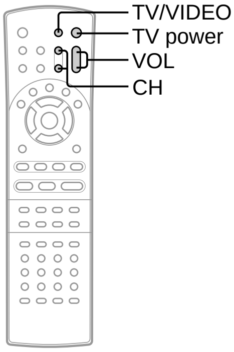
Operating a TV with the remote control

Preparation

Follow the instruction of “To program the remote control” to set the brand code.

Point the remote control at your TV, and use buttons as follows.

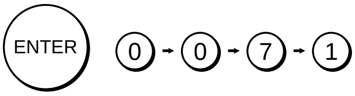
TV power	To turn the power on and off.
TV/VIDEO	To select a video input.
VOL + / –	To adjust the volume.
CH ∧ / ∨	To select a channel.



■ To program the remote control

1 While holding down **ENTER**, press the **number buttons** that correspond to your TV’s brand code referring to the list on the next page.

e.g. To Program brand code 0071.



Hold down.

2 Release **ENTER**.
The DVD remote control memorizes the selected brand code.

Notes

- The remote control is programmed at the factory to operate TOSHIBA TVs.
- A single brand may use different codes depending on the particular model. Enter the correct number referring to the brand code table.
- For some brands, several brand codes are provided. Try each of them until the remote control operates your TV.
- Some TVs may not respond to all of the functions in the table above, or may not be operated at all with this remote control. In this case, operate that TV with its own remote control.
- If you replace the remote control’s batteries, remember to reprogram the brand codes for TV.

■ Brand code table

Brand name	Brand code				
TOSHIBA	0001	0071	0211	0571	
AIWA	0921				
AKAI	0201	0241	0331	0431	0501
	0521	0641			
BAIRD	0171	0241			
BANG & OLUFSEN	0471				
BEKO	0181				
BLAUPUNKT	0071	0321	0331		
BRIONVEGA	0461	0471	0651		
BUSH	0071	0501	0551	0571	
CROWN	0111	0131	0411	0491	0501
	0661				
DEAWOO	0401	0411	0501		
DANSAI	0501				
DECCA	0091	0141	0171	0441	0451
	0501				
FERGUSON	0031	0071	0131	0191	0291
	0311	0381	0541	0601	
FINLUX	0021	0041	0071	0081	0091
	0111	0271	0281	0291	0301
	0341	0471			
FISHER	0041	0121	0181	0201	0281
	0471	0571	0651		
FUNAI	0001	0191	0481	0491	
GEC	0171	0221			
GOLDSTAR	0201	0251	0281	0411	0501
GOODMANS	0171	0281	0501	0571	
GRANADA	0171	0241	0271	0501	0571
	0651	0671			
GRUNDIG	0011	0071	0271	0321	0331
HINARI	0241	0411	0571	0631	
HITACHI	0021	0221	0251	0351	0371
	0381	0431	0571	0641	0751
INNO HIT	0171	0281	0411	0501	0631
	0661				
ITT	0231	0241	0261	0271	0401
	0611				
ITT-NOKIA	0231	0241	0261	0271	0401
	0611				
JVC	0311	0431	0521	0571	
LOEWE OPTA	0471	0501	0571	0651	
LUXOR	0241	0261	0271	0281	0351
MAGNAVOX	0501	0071	0191	0221	0461
	0471	0591	0611	0651	
MARANTZ	0201	0501			
MATSUI	0001	0171	0191	0231	0411
	0441	0451	0501	0551	0571
METZ	0041	0331	0361	0461	0471
	0651				
MITSUBISHI	0201	0321	0331	0451	0501
	0511	0571	0651	0771	
NATIONAL	0501	0371	0511	0531	0761
	0841	0911			
NEC	0201	0251	0571	0741	
NOKIA	0231	0241	0261	0271	0401
	0611				
NORDMENDE	0281	0351	0381	0421	0431
	0461	0521	0541	0641	0671
OCEANIC	0481				
ORION	0001	0191	0231	0361	0411
	0441	0451	0501	0551	0611
PANASONIC	0371	0501	0511	0531	0761
	0841	0911	1061		
PHILCO	0071	0111	0181	0201	0271
	0301	0461	0501	0651	
PHILIPS	0071	0191	0221	0461	0471
	0501	0591	0611	0651	
PIONEER	0381	0431	0501	0831	1051
PROSCAN - THOMSON	0971	1041	0201	0501	
RCA	0971	1071	1081	1091	0201
	1041	0501			
REALISTIC	0631	1001	1011	1021	1031
	0851	0201	0501	0481	0321
	0331				
SABA	0281	0351	0381	0421	0431
	0471	0541	0641	0651	0661
	0671				
SAISHO	0231	0411	0441	0451	0551
SALORA	0231	0241	0351		
SAMSUNG	0171	0181	0251	0281	0411
	0491	0501	0631	0661	0791
SANYO	0021	0041	0081	0121	0171
	0181	0201	0231	0241	0451
	0571	0651			
SCHNEIDER	0011	0051	0061	0281	0461
	0501	0581	0591		
SEG	0091	0121	0151		
SELECO	0031	0051	0061	0351	0501
	0561				
SHARP	0851	0511	0571	0201	0501
SIEMENS	0071	0321	0331	0571	0631
SINGER	0091	0471	0651		
SINUDYNE	0001	0091	0101	0131	0191
	0231	0361	0471	0501	0551
	0581	0651			
SONY	0441	0451	0571	0681	
TANDBERG	0041	0301	0351	0431	0461
	0571	0651			
TATUNG	0091	0141	0171	0441	0451
	0501				
TECHNICS	0371	0501	0511	0531	0761
	0841	0911			
TELEFUNKEN	0071	0281	0381	0421	0431
	0521	0601	0621	0671	
TENSAI	0041				
THOMSON	0281	0351	0371	0381	0391
	0421	0431	0521	0541	0641
	0971	1041			
THORN	0041	0071	0281	0291	0341
	0421	0491	0601	0671	
UNIVERSUM	0021	0491			
YAMAHA	0201	0501	0321	0331	0451
	0511	0571	0651	0771	
ZANUSSI	0031	0051	0061	0351	0501
	0561				
ZENITH	0931				

Before Calling Service Personnel

Check the following guide for the possible cause of a problem before contacting service.

Symptoms and correction

Symptom	Cause	Correction	Page
No power.	• The power plug is disconnected.	• Connect the power plug securely into the wall outlet.	**18**
The DVD player turned off by itself.	• The automatic power off function turned the unit off.	• Press the PLAY button.	**27**
No picture.	• The TV is not set to receive DVD signal output.	• Select the appropriate video input mode on the TV so the picture from the DVD player appears on the TV screen.	**26**
	• The video cable is not connected securely.	• Connect the video cable securely into the appropriate jacks.	**18-20**
No sound.	• The equipment connected with the audio cable is not set to receive DVD signal output.	• Select the correct input mode of the audio receiver so you can listen to the sound from the DVD player.	**26**
	• The audio cable is not connected securely.	• Connect the audio cable securely into the appropriate jacks.	**18-24**
	• The audio receiver or TV is turned off.	• Turn on the equipment connected with the audio cable.	**26**
	• The setting of output sound format is incorrect.	• Select the proper audio setting.	**42, 56 61**
The playback picture has occasional distortion.	• The disc is dirty.	• Eject the disc and clean it.	**9**
	• It is in fast forward or fast reverse playback.	• Sometimes a small amount of picture distortion may appear. This is not a malfunction.	**–**
Brightness is unstable or noises are present in the playback pictures.	• The effect of copy protection.	• Connect the DVD player directly to the TV. Avoid connecting the DVD player to a VTR or TV/VTR combination.	**18**
The DVD player does not start playback.	• No disc is inserted.	• Insert a disc.	**26**
	• An unplayable disc is inserted.	• Insert a playable disc. (Check the disc type.)	**10**
	• The disc is placed upside down.	• Place the disc with the playback side down.	**26**
	• The disc is not placed within the guide.	• Place the disc correctly inside the guide on the disc tray.	**26**
	• The disc is dirty.	• Clean the disc.	**9**
	• The parental lock function is set.	• Cancel the parental lock function or change the parental lock level.	**56, 65**
Playback does not follow the course of the disc's program.	• It is in the mode of repeat playback, memory playback, etc.	• These operations may prevent a proper progress of the contents.	**–**
Buttons do not work.	• Power supply fluctuations or other abnormalities such as static electricity may interrupt correct operations.	• Press and hold the ON/STANDBY button on the front panel for more than about 3 seconds. The DVD player turns off. Press the button again to turn it on. If the buttons still do not work, disconnect the power plug and insert it into the wall outlet again.	**–**
The remote control does not work properly.	• The remote control is not pointed at the remote sensor of the DVD player.	• Point the remote control at the remote sensor of the DVD player.	**15**
	• The remote control is too far from the DVD player.	• Operate the remote control within about 7 m.	**15**
	• The batteries in the remote control are exhausted.	• Replace the batteries with new ones.	**15**

Specifications

DVD player / outputs / supplied accessories

DVD player

Power supply	100 – 240 V AC, 50/60 Hz
Power consumption	19 W
Mass	2.5 kg
External dimensions	430 × 69 × 219 mm (W/H/D)
Signal system	PAL/3.58 NTSC
Laser	Semiconductor laser, wavelength 650 nm / 780 nm
Frequency range	DVD linear sound : 48 kHz sampling 4 Hz to 22 kHz 96 kHz sampling 4 Hz to 44 kHz 192 kHz sampling 4 Hz to 88 kHz
Signal-to-noise ratio	More than 112 dB
Audio dynamic range	More than 108 dB
Harmonic distortion	Less than 0.002 %
Wow and flutter	Below measurable level (less than ±0.001 % (W.PEAK))
Operating conditions	Temperature: 5 °C to 35 °C, Operation status: Horizontal

Outputs

Video output (SCART)	1.0 V (p-p), 75 Ω, SCART socket × 1
Video output (Phono type)	1.0 V (p-p), 75 Ω, negative sync., pin jack × 1
S video output	(Y) 1.0 V (p-p), 75 Ω, negative sync., Mini DIN 4-pin × 1 (C) 0.3 V (p-p), 75 Ω
Component video output	(Y) 1.0 V (p-p), 75 Ω, negative sync., pin jack × 1 (P_B)/(P_R) 0.7 V (p-p), 75 Ω, pin jack × 2
Audio output (SCART)	2.0 V (rms), 680 Ω, SCART socket × 1
Audio output (BITSTREAM/PCM OPTICAL)	Optical connector × 1
Audio output (BITSTREAM/PCM COAXIAL)	0.5 V (p-p), 75 Ω, pin jack × 1
Audio output (2CH AUDIO)	2.0 V (rms), 680 Ω, pin jacks (L, R) × 1
Audio output (5.1CH SURROUND)	2.0 V (rms), 680 Ω, pin jacks × 6

Supplied Accessories

Audio/video cable	1
Remote control (SE-R0071 or SE-R0081)	1
Batteries (R03)	2
Power cord	1

- Designs and specifications are subject to change without notice.

2. LOCATION OF MAIN PARTS AND MECHANISM PARTS

2-1. Location of Main Parts

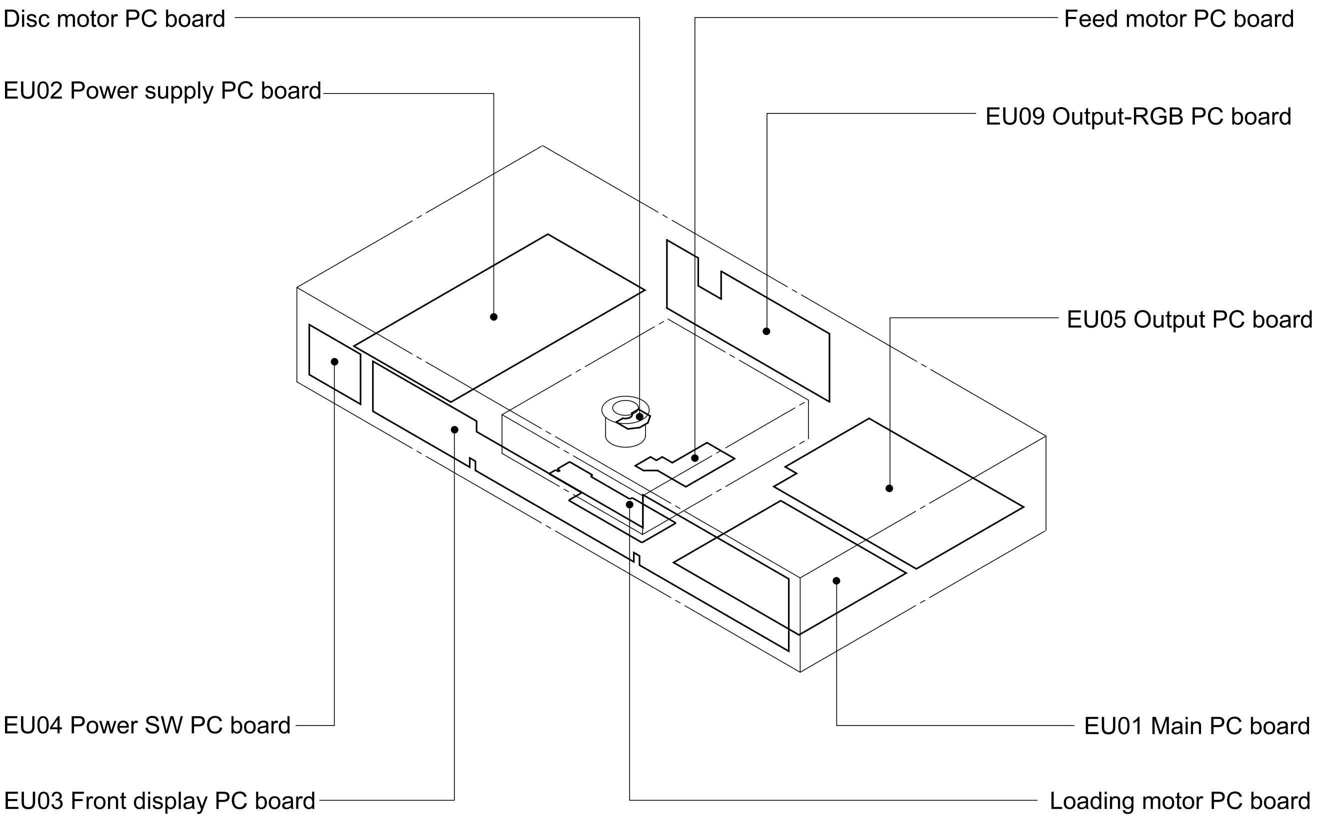

Disc motor PC board
EU02 Power supply PC board
Feed motor PC board
EU09 Output-RGB PC board
EU05 Output PC board
EU04 Power SW PC board
EU03 Front display PC board
EU01 Main PC board
Loading motor PC board

Fig. 1-2-1

2-2. Location of Mechanism Parts

2-2-1. Type A

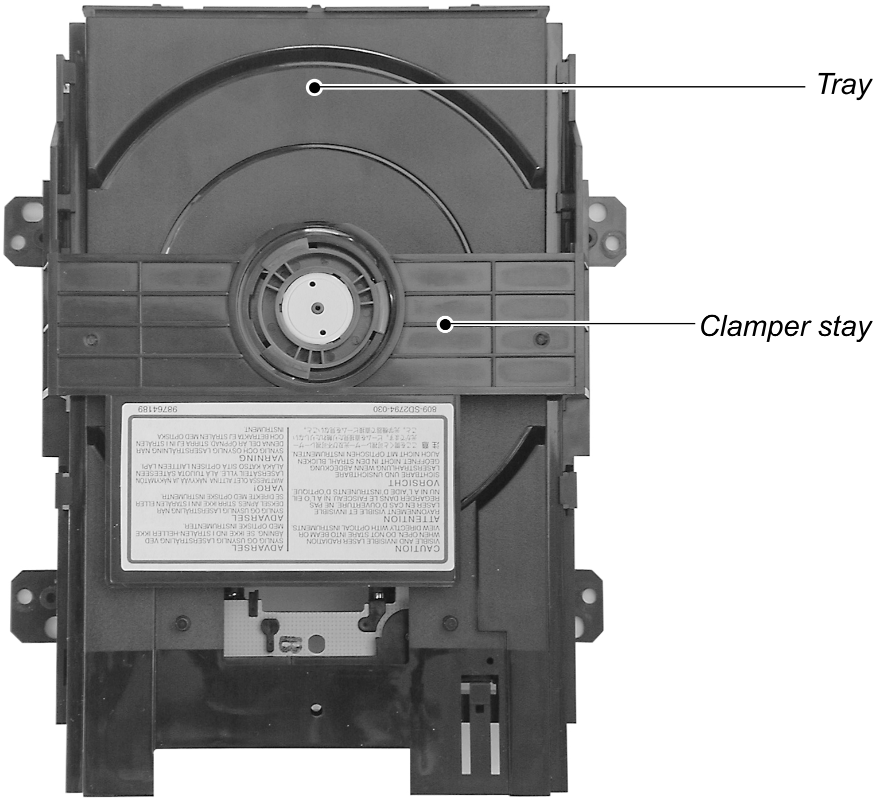

Tray
Clamper stay

Fig. 1-2-2 Mechanism chassis assembly (Top side)

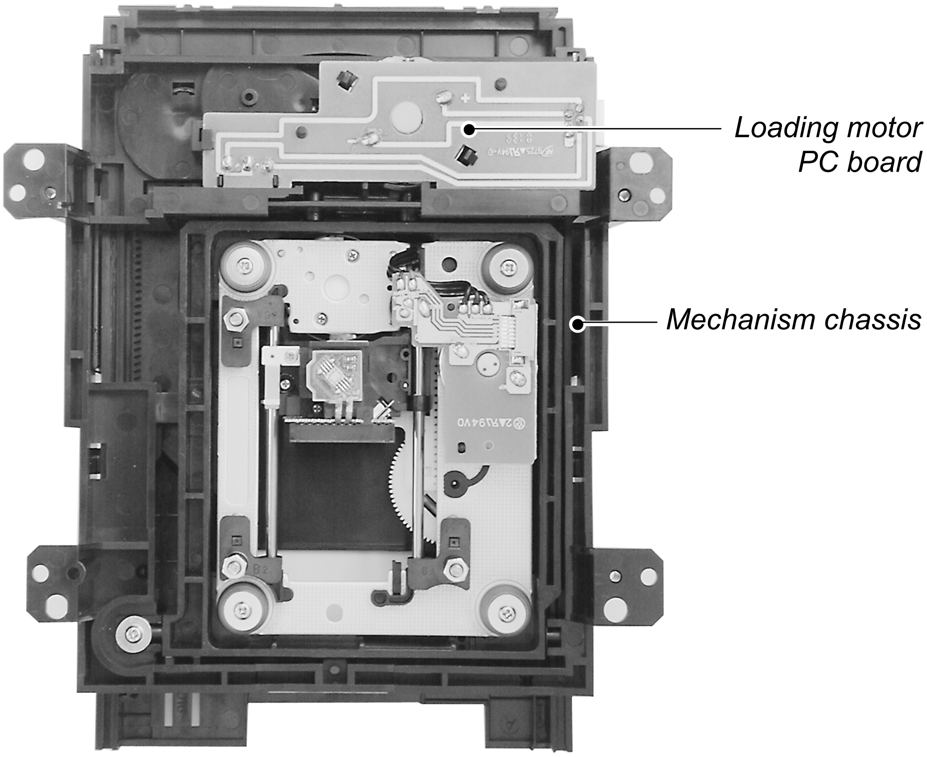

Loading motor
PC board
Mechanism chassis

Fig. 1-2-3 Mechanism chassis assembly (Bottom side)

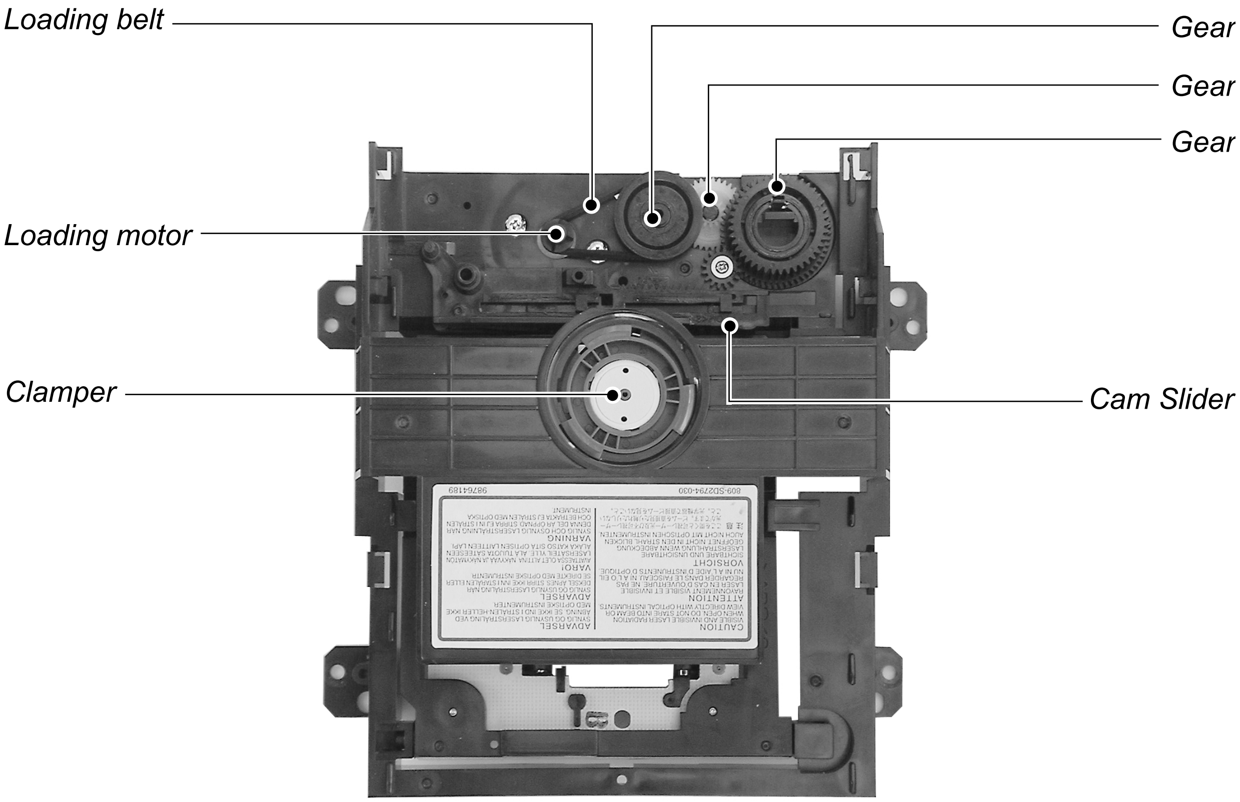

Loading belt
Gear
Gear
Gear
Loading motor
Clamper
Cam Slider

Fig. 1-2-4 Mechanism chassis assembly (Internal side)

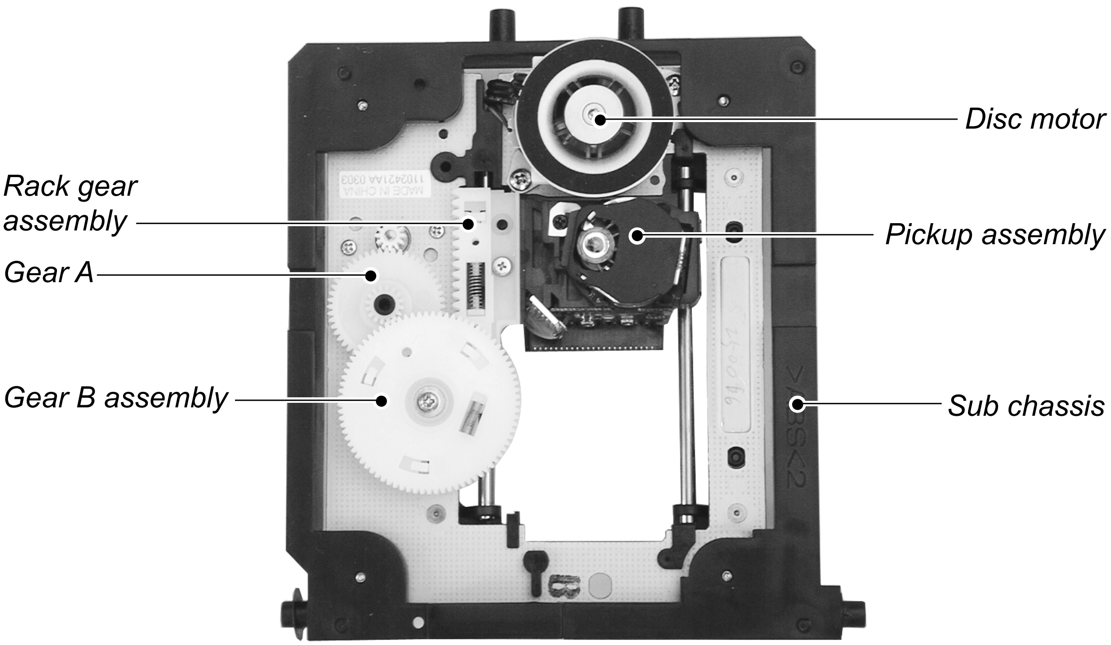

Disc motor
Rack gear assembly
Pickup assembly
Gear A
Gear B assembly
Sub chassis

Fig. 1-2-5 Pickup mechanism chassis assembly (Top side)

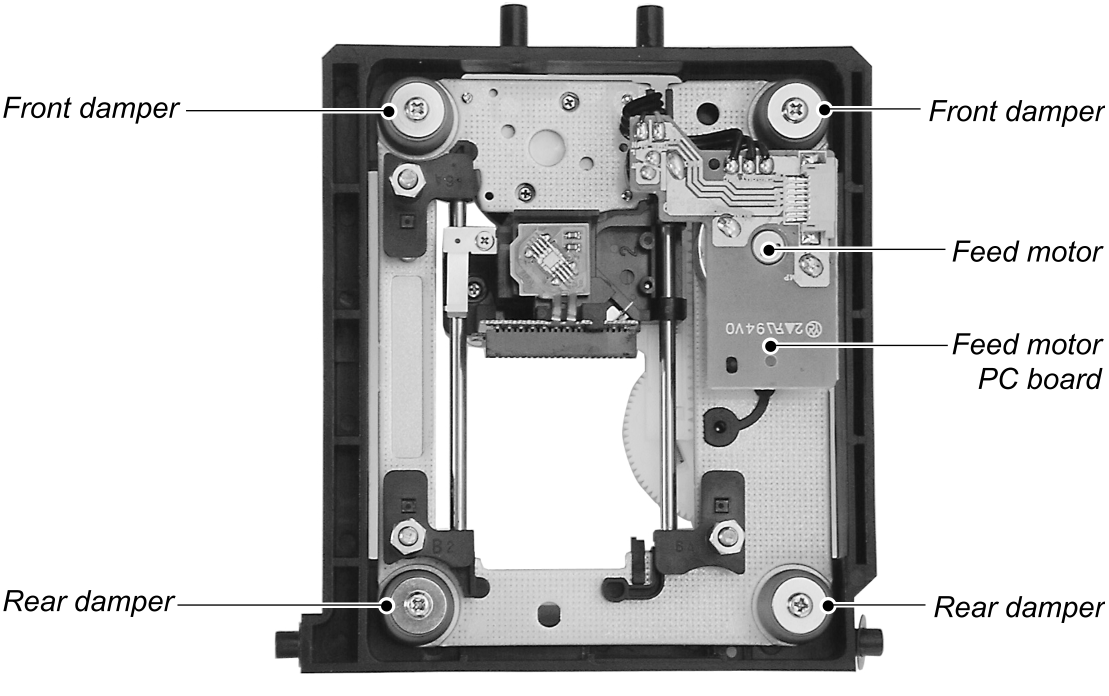

Front damper
Front damper
Feed motor
Feed motor PC board
Rear damper
Rear damper

Fig. 1-2-6 Pickup mechanism chassis assembly (Bottom side)

2-2-2. Type B

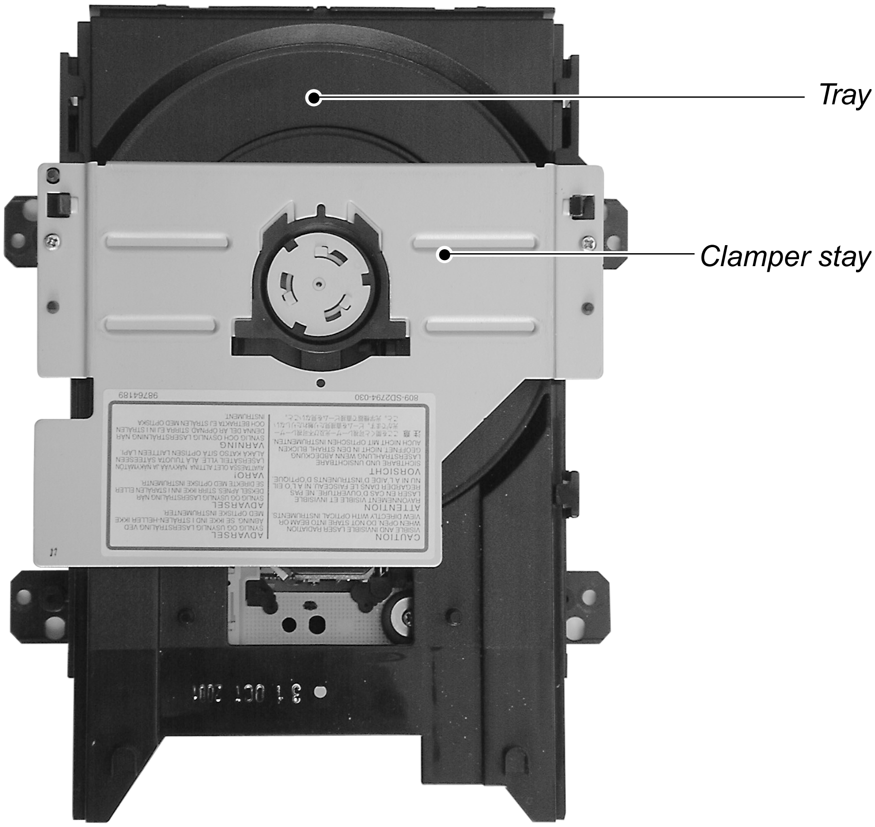

Tray
Clamper stay

Fig. 1-2-7 Mechanism chassis assembly (Top side)

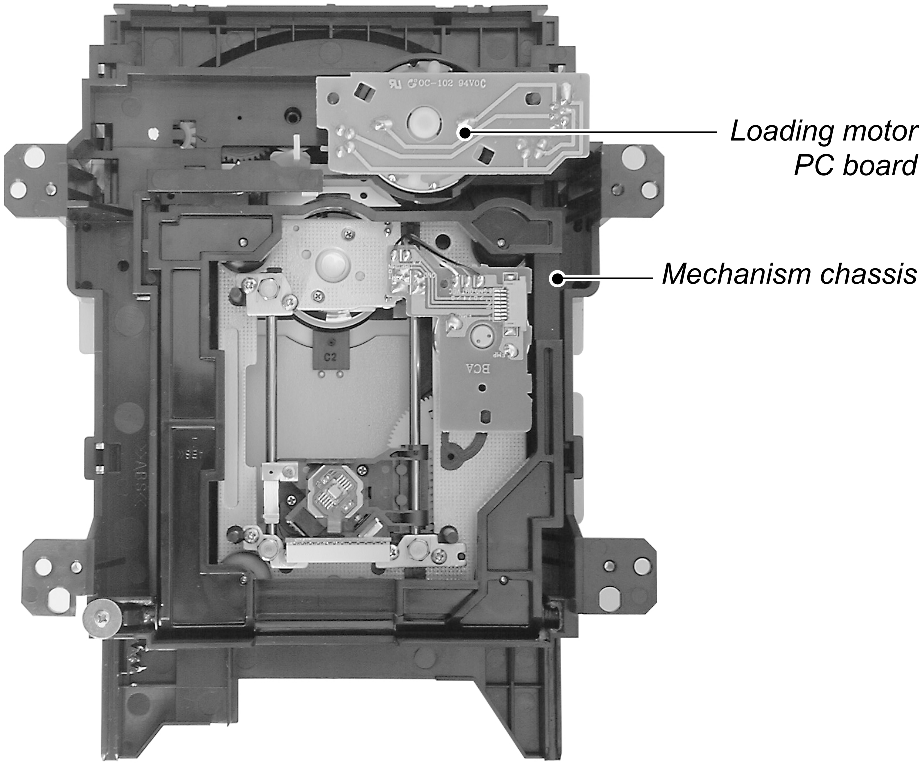

Loading motor
PC board
Mechanism chassis

Fig. 1-2-8 Mechanism chassis assembly (Bottom side)

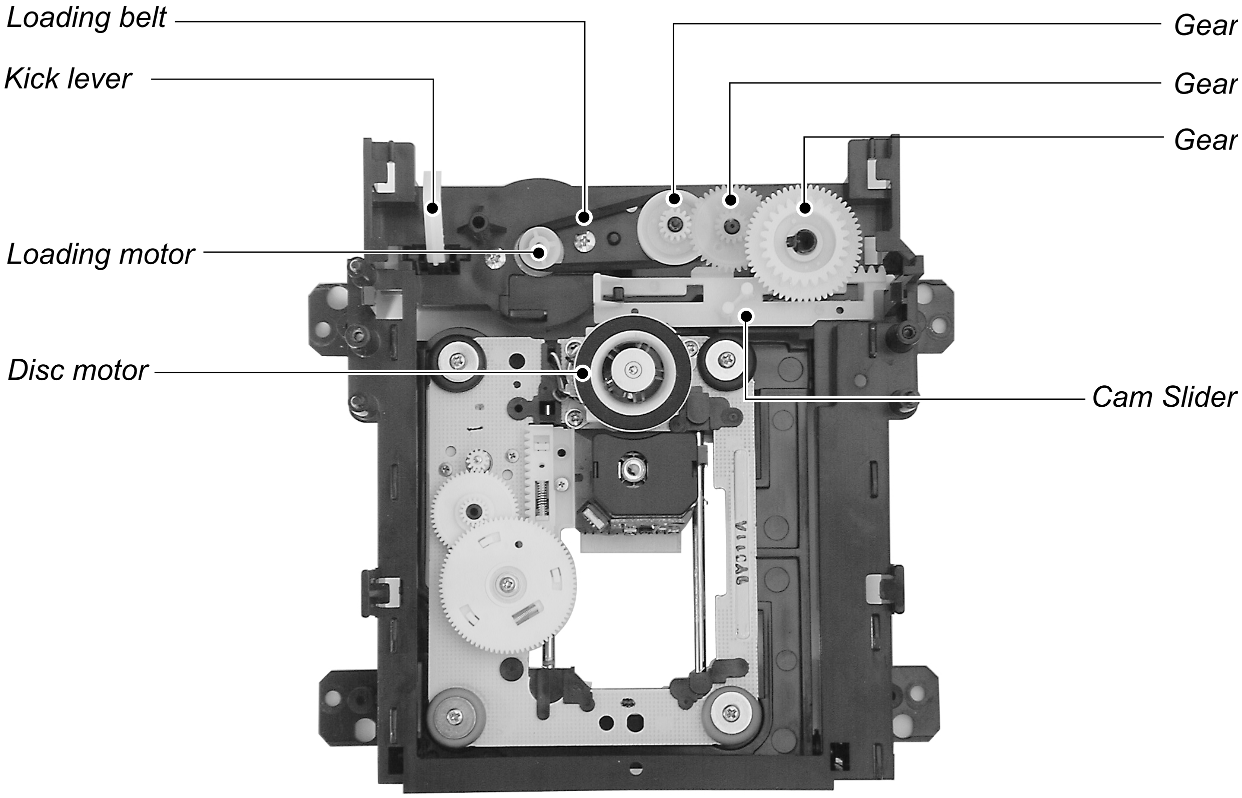

Loading belt
Kick lever
Loading motor
Disc motor
Gear
Gear
Gear
Cam Slider

Fig. 1-2-9 Mechanism chassis assembly (Internal side)

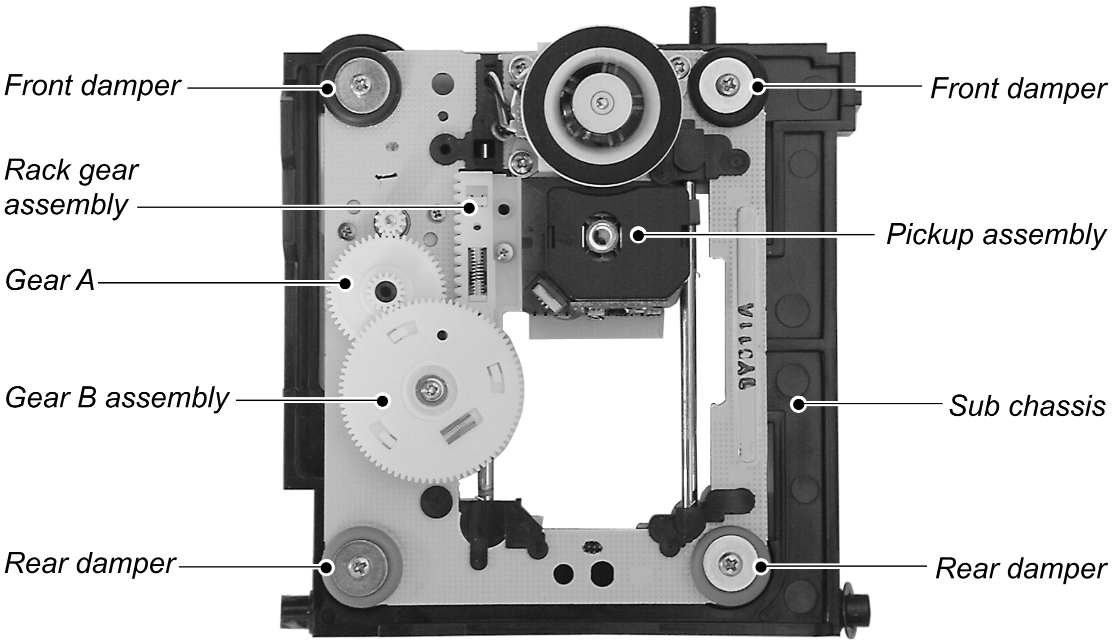

Front damper
Rack gear assembly
Gear A
Gear B assembly
Rear damper
Front damper
Pickup assembly
Sub chassis
Rear damper

Fig. 1-2-10 Pickup mechanism chassis assembly (Top side)

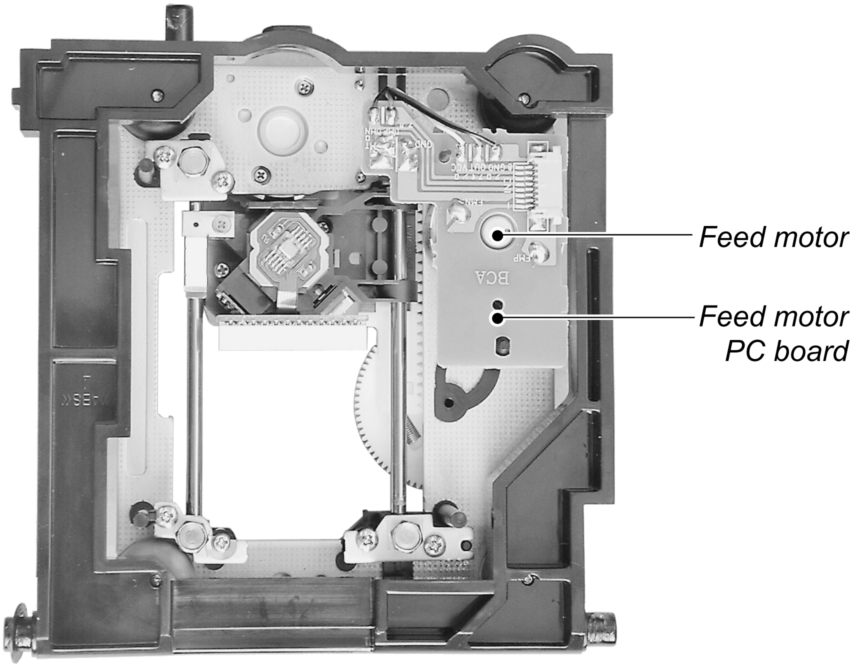

Feed motor
Feed motor PC board

Fig. 1-2-11 Pickup mechanism chassis assembly (Bottom side)

3. TROUBLESHOOTING

3-1. Main Circuit

3-1-1. Servo System

(1) Initial Operation after Power ON

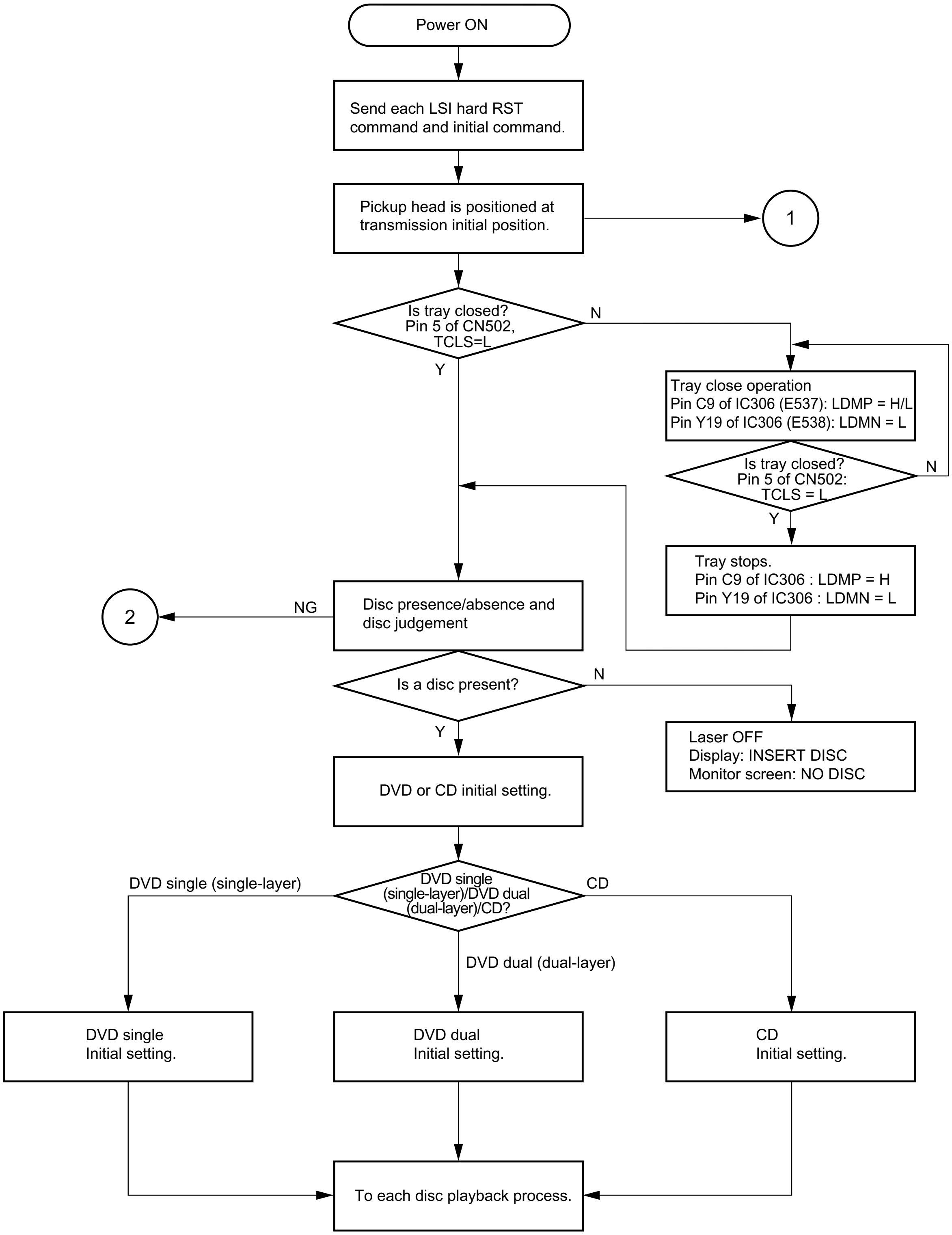
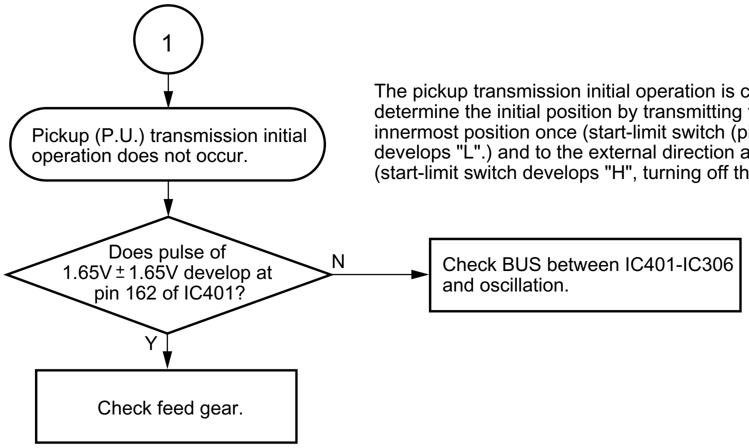

Power ON
Send each LSI hard RST command and initial command.
Pickup head is positioned at transmission initial position.
1
Is tray closed? Pin 5 of CN502, TCLS=L
N
Y
Tray close operation
Pin C9 of IC306 (E537): LDMP = H/L
Pin Y19 of IC306 (E538): LDMN = L
Is tray closed? Pin 5 of CN502: TCLS = L
N
Y
Tray stops.
Pin C9 of IC306 : LDMP = H
Pin Y19 of IC306 : LDMN = L
2
NG
Disc presence/absence and disc judgement
Is a disc present?
N
Y
Laser OFF
Display: INSERT DISC
Monitor screen: NO DISC
DVD or CD initial setting.
DVD single (single-layer)
DVD single (single-layer)/DVD dual (dual-layer)/CD?
CD
DVD dual (dual-layer)
DVD single Initial setting.
DVD dual Initial setting.
CD Initial setting.
To each disc playback process.

Fig. 1-3-1


1
Pickup (P.U.) transmission initial operation does not occur.
Does pulse of 1.65V ± 1.65V develop at pin 162 of IC401?
N
Check BUS between IC401-IC306 and oscillation.
Y
Check feed gear.

The pickup transmission initial operation is carried out to determine the initial position by transmitting the pickup to the innermost position once (start-limit switch (pin 4 of CN503) develops "L".) and to the external direction at low speed (start-limit switch develops "H", turning off the switch.).

Fig. 1-3-2

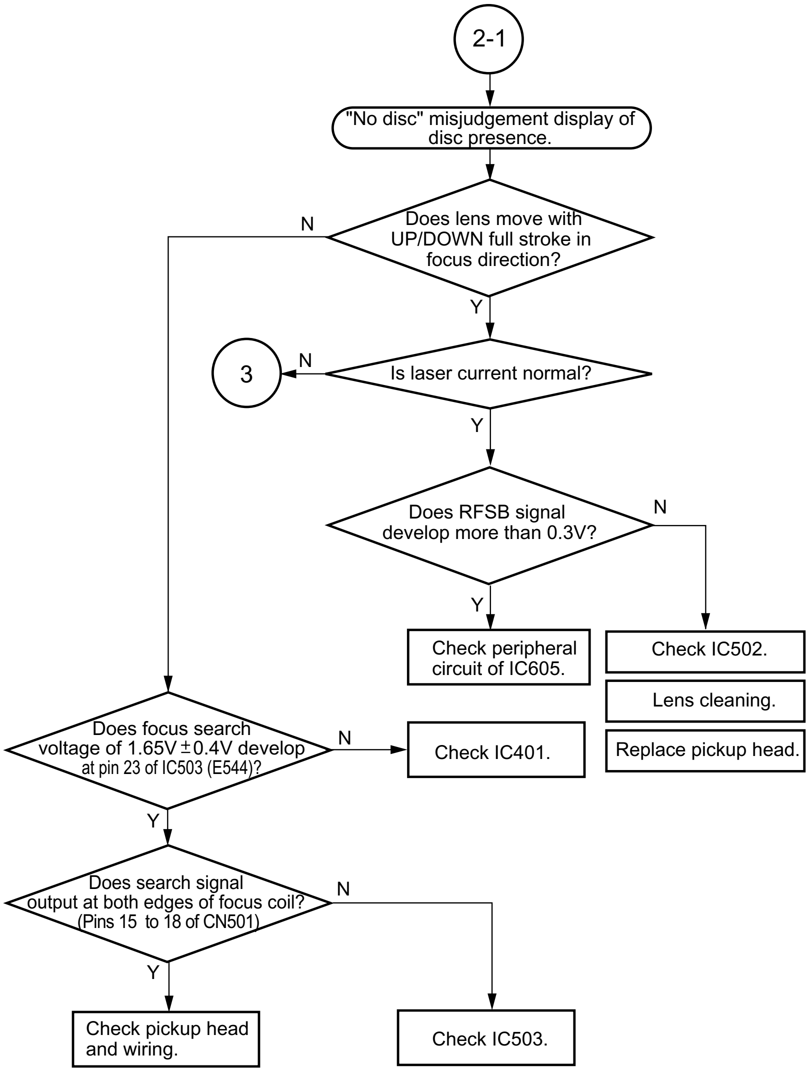

2-1
"No disc" misjudgement display of disc presence.
Does lens move with UP/DOWN full stroke in focus direction?
N
Y
Is laser current normal?
N
3
Y
Does RFSB signal develop more than 0.3V?
N
Y
Check peripheral circuit of IC605.
Check IC502.
Lens cleaning.
Replace pickup head.
Does focus search voltage of 1.65V ± 0.4V develop at pin 23 of IC503 (E544)?
N
Check IC401.
Y
Does search signal output at both edges of focus coil? (Pins 15 to 18 of CN501)
N
Y
Check pickup head and wiring.
Check IC503.

Fig. 1-3-3

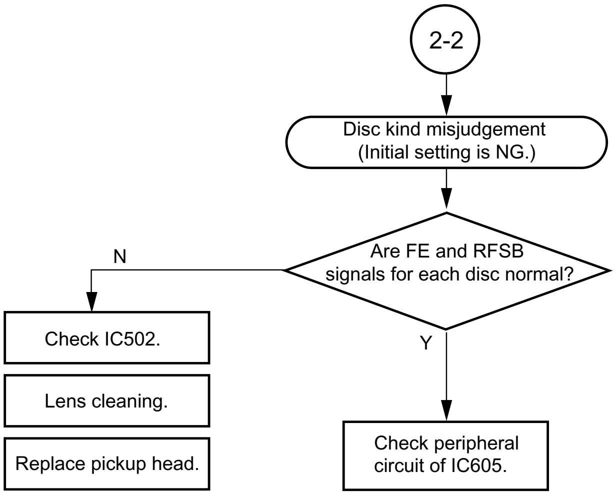
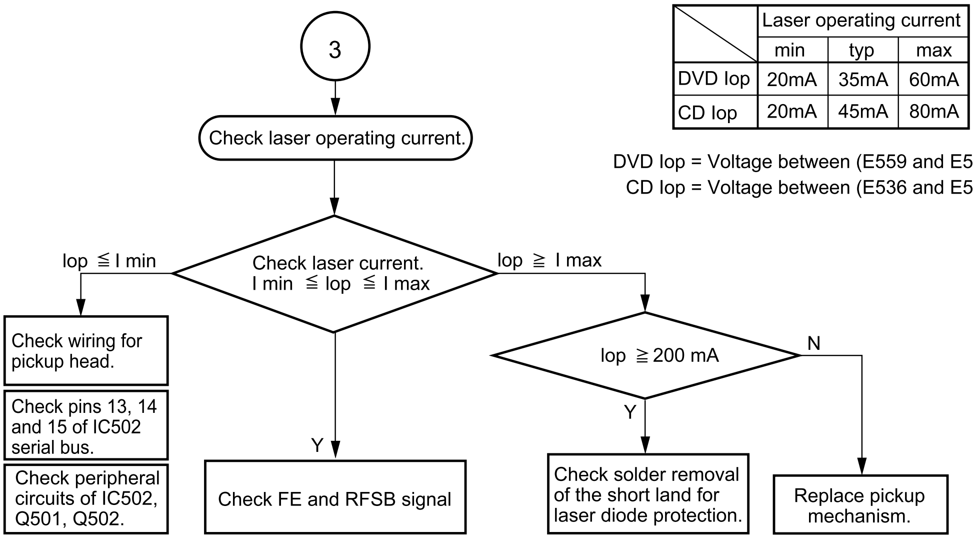

2-2
Disc kind misjudgement
(Initial setting is NG.)
Are FE and RFSB signals for each disc normal?
N
Y
Check IC502.
Lens cleaning.
Replace pickup head.
Check peripheral circuit of IC605.

Fig. 1-3-4


3
Check laser operating current.
Check laser current.
I min ≦ Iop ≦ I max
Iop ≦ I min
Iop ≧ I max
Y
Iop ≧200 mA
N
Y
Check wiring for pickup head.
Check pins 13, 14 and 15 of IC502 serial bus.
Check peripheral circuits of IC502, Q501, Q502.
Check FE and RFSB signal
Check solder removal of the short land for laser diode protection.
Replace pickup mechanism.

	Laser operating current		
	min	typ	max
DVD Iop	20mA	35mA	60mA
CD Iop	20mA	45mA	80mA

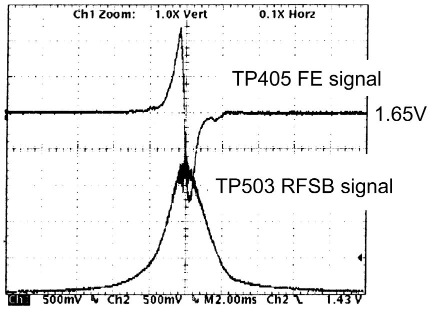
DVD Iop = Voltage between (E559 and E591) /10Ω
CD Iop = Voltage between (E536 and E591) /10Ω

To turn on each laser diode forcibly, press the following buttons on the remote controller.
DVD LD: ZOOM, 0, 3, 0, ZOOM
CD LD: ZOOM, 0, 3, 1, ZOOM
After checked the laser current, press POWER or OPEN/CLOSE button to turn it off.

CAUTION
- The laser ray emitting out from the pickup head is very harmful to your eyes.
  Keep your eyes from the objective lens at least 300mm distance during the pickup head operating.
- When you perform solder removal work, please turn OFF a set power supply and perform the ground of human body and a tool.

Fig. 1-3-5

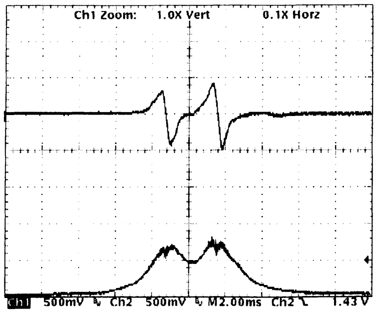
DVD single (single-layer) disc detection waveform



V : 500 mV/div
H : 2 ms/div

Fig. 1-3-6

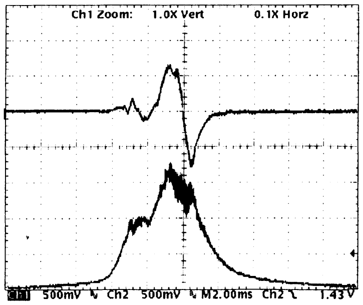
DVD dual (dual-layer) disc detection waveform



V : 500 mV/div
H : 2 ms/div

Fig. 1-3-7

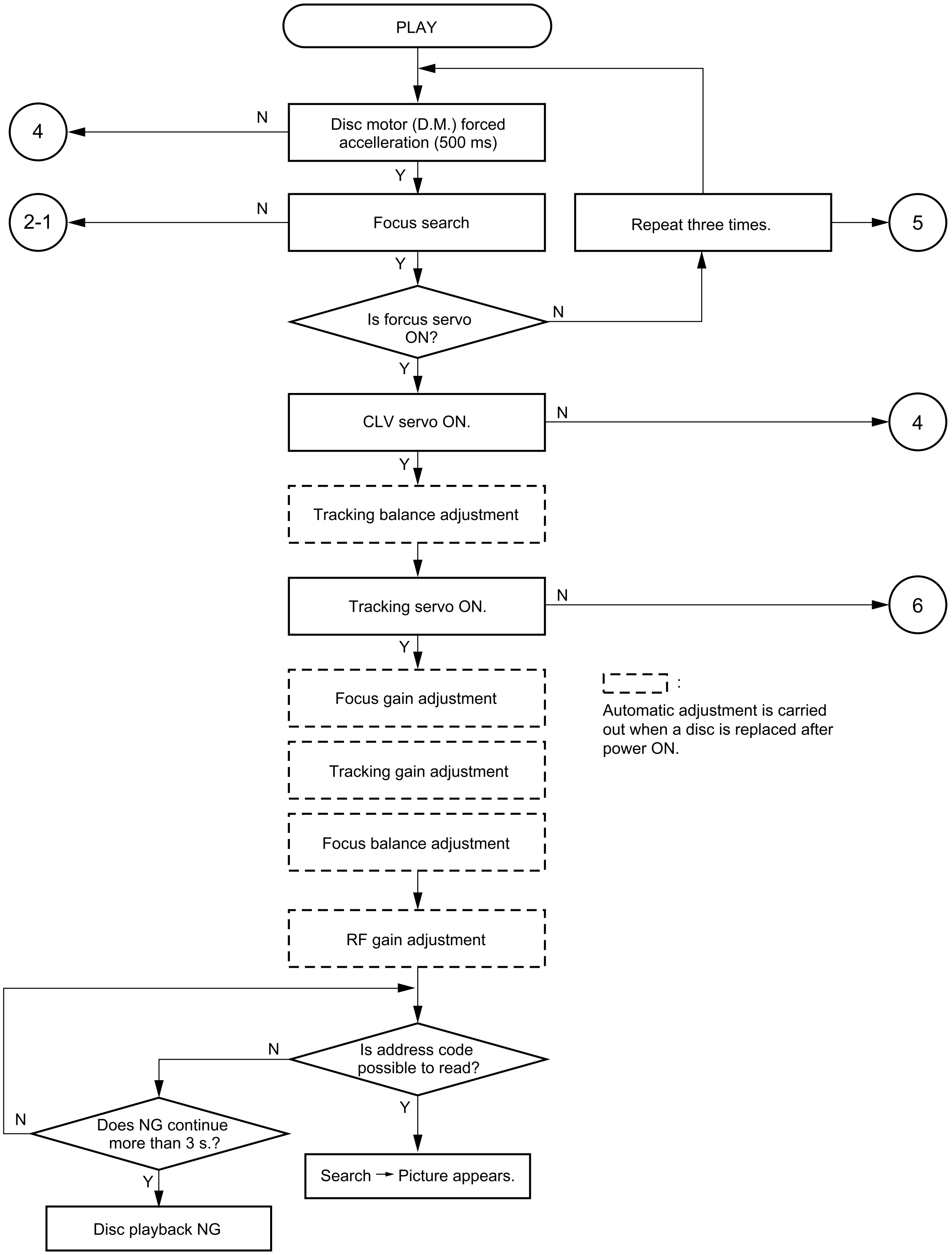
CD disc detection waveform



V : 500 mV/div
H : 2 ms/div

Fig. 1-3-8

(2) Picture appears (PLAY)


PLAY
Disc motor (D.M.) forced accelleration (500 ms)
N
4
Y
Focus search
N
2-1
Y
Is forcus servo ON?
N
Repeat three times.
5
Y
CLV servo ON.
N
4
Y
Tracking balance adjustment
Tracking servo ON.
N
6
Y
Focus gain adjustment
Tracking gain adjustment
Focus balance adjustment
RF gain adjustment
Is address code possible to read?
N
Y
Search → Picture appears.
Does NG continue more than 3 s.?
N
Y
Disc playback NG

: Automatic adjustment is carried out when a disc is replaced after power ON.

Fig. 1-3-9

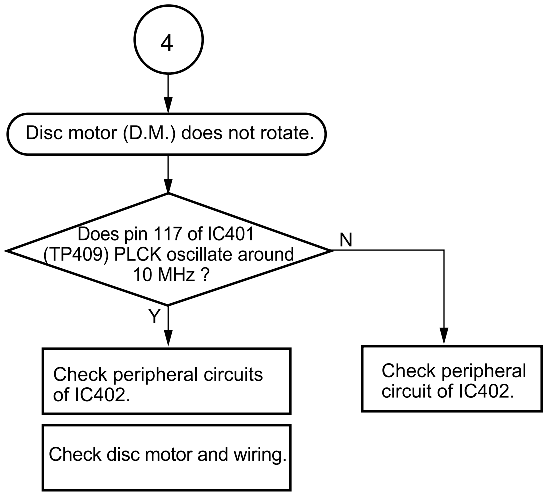

4
Disc motor (D.M.) does not rotate.
Does pin 117 of IC401 (TP409) PLCK oscillate around 10 MHz ?
N
Y
Check peripheral circuits of IC402.
Check disc motor and wiring.
Check peripheral circuit of IC402.

Fig. 1-3-10

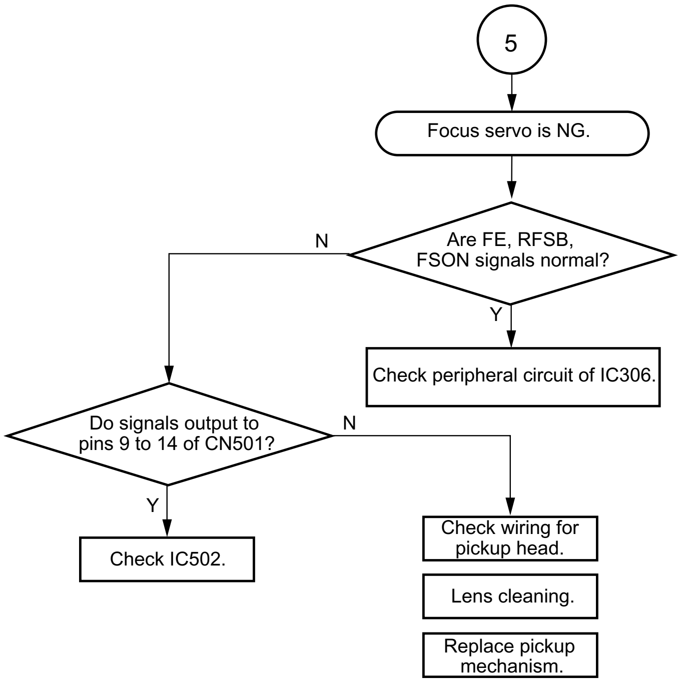

5
Focus servo is NG.
Are FE, RFSB, FSON signals normal?
N
Y
Check peripheral circuit of IC306.
Do signals output to pins 9 to 14 of CN501?
N
Y
Check IC502.
Check wiring for pickup head.
Lens cleaning.
Replace pickup mechanism.

Fig. 1-3-11

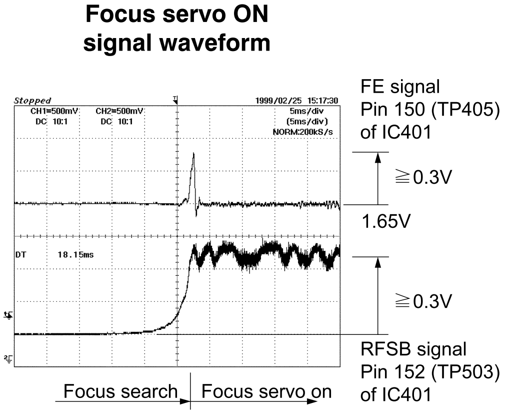


Fig. 1-3-12

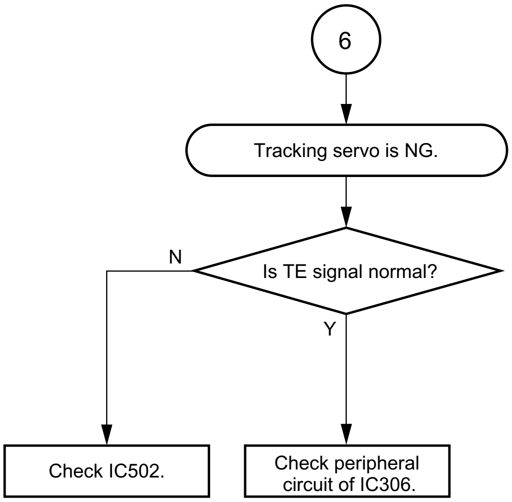
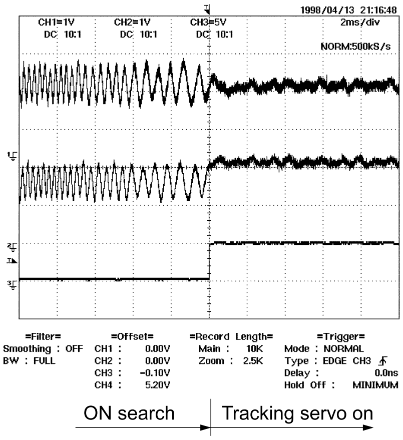

6
Tracking servo is NG.
Is TE signal normal?
N
Y
Check IC502.
Check peripheral circuit of IC306.

Fig. 1-3-13

Signal waveform at tracking servo ON (CD)



TE signal
Pin 151 (TP406) of IC401
1.65V

RFRP signal
Pin 153 (TP408) of IC401

Search ON (SRCH)
Pin 38 (TP411) of IC401

Fig. 1-3-14

Signal waveform at tracking servo ON (DVD)

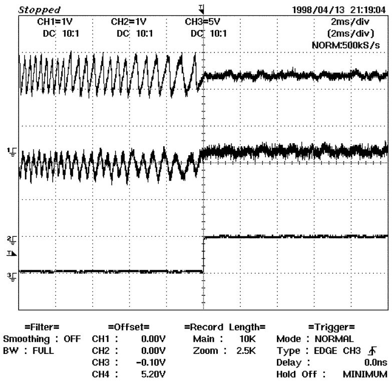


Fig. 1-3-15

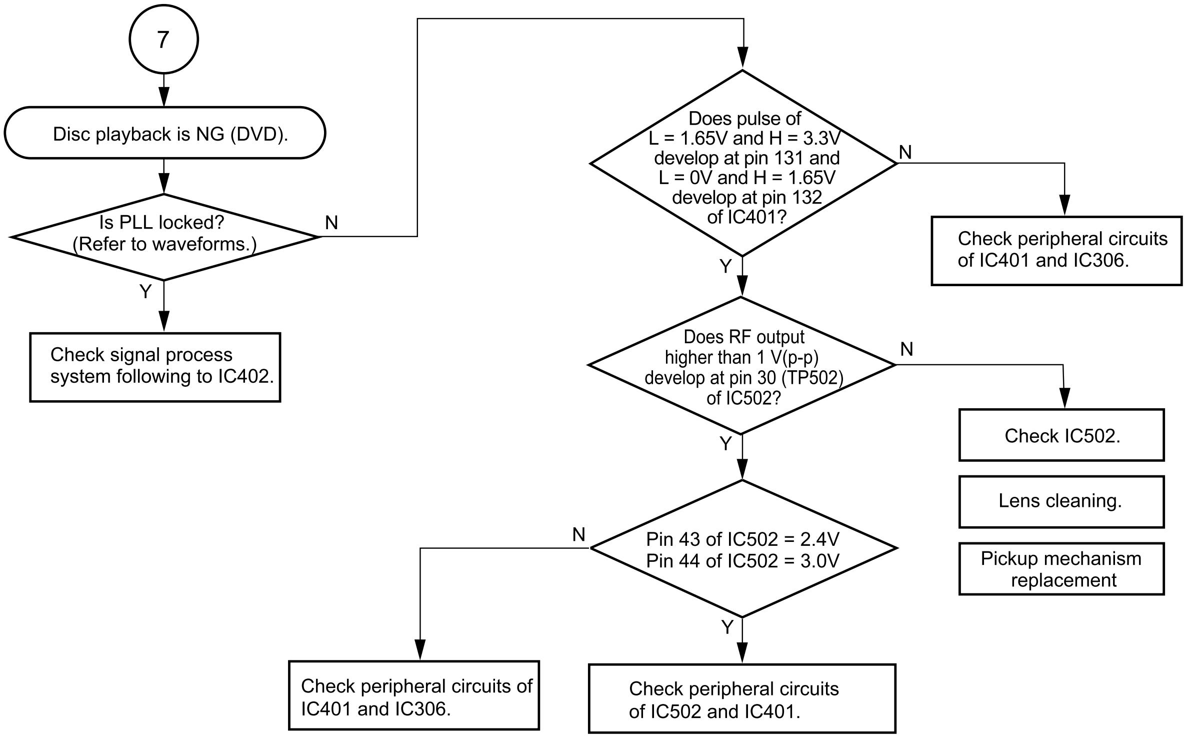
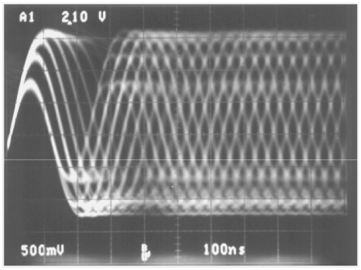

7
Disc playback is NG (DVD).
Is PLL locked? (Refer to waveforms.)
N
Y
Check signal process system following to IC402.
Does pulse of L = 1.65V and H = 3.3V develop at pin 131 and L = 0V and H = 1.65V develop at pin 132 of IC401?
N
Check peripheral circuits of IC401 and IC306.
Y
Does RF output higher than 1 V(p-p) develop at pin 30 (TP502) of IC502?
N
Check IC502.
Lens cleaning.
Pickup mechanism replacement
Y
Pin 43 of IC502 = 2.4V Pin 44 of IC502 = 3.0V
N
Check peripheral circuits of IC401 and IC306.
Y
Check peripheral circuits of IC502 and IC401.

Fig. 1-3-16

PLL works as a servo loop to generate a clock signal for reading RF signal binary data. With the PLL locked, the eye pattern is identified clearly when triggered with the read clock PLCK.

DVD RF signal

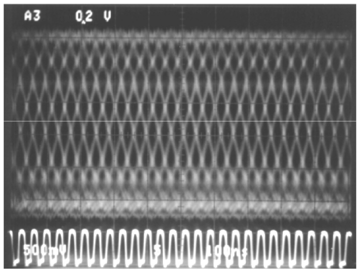


DVD RF signal
Pin 30 (TP502) of IC502

V : 500 mV/div
H : 50 ns/div

Fig. 1-3-17

DVD playback waveform



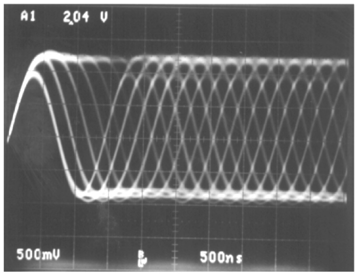
DVD RF signal
Pin 30 (TP502) of IC502

DVD PLCK
Pin 117 (TP409) of IC401

CH1 : TP502 DVDRF 500 mV/div
CH2 : TP409 DVDPLCK 5 V/div
50 ns/div

Fig. 1-3-19

CD RF signal

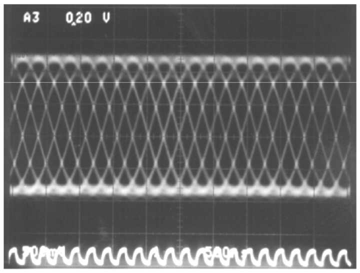


CD RF signal
Pin 30 (TP502) of IC502

V : 500 mV/div
H : 100 ns/div

Fig. 1-3-18

CD playback waveform



CD RF signal
Pin 30 (TP502) of IC502

CD PLCK
Pin 117 (TP409) of IC401

CH1 : TP502 CDRF 500 mV/div
CH2 : TP409 CDPLCK 5 V/div
100 ns/div

Fig. 1-3-20

3-1-2. Location Diagram of Servo Test Point

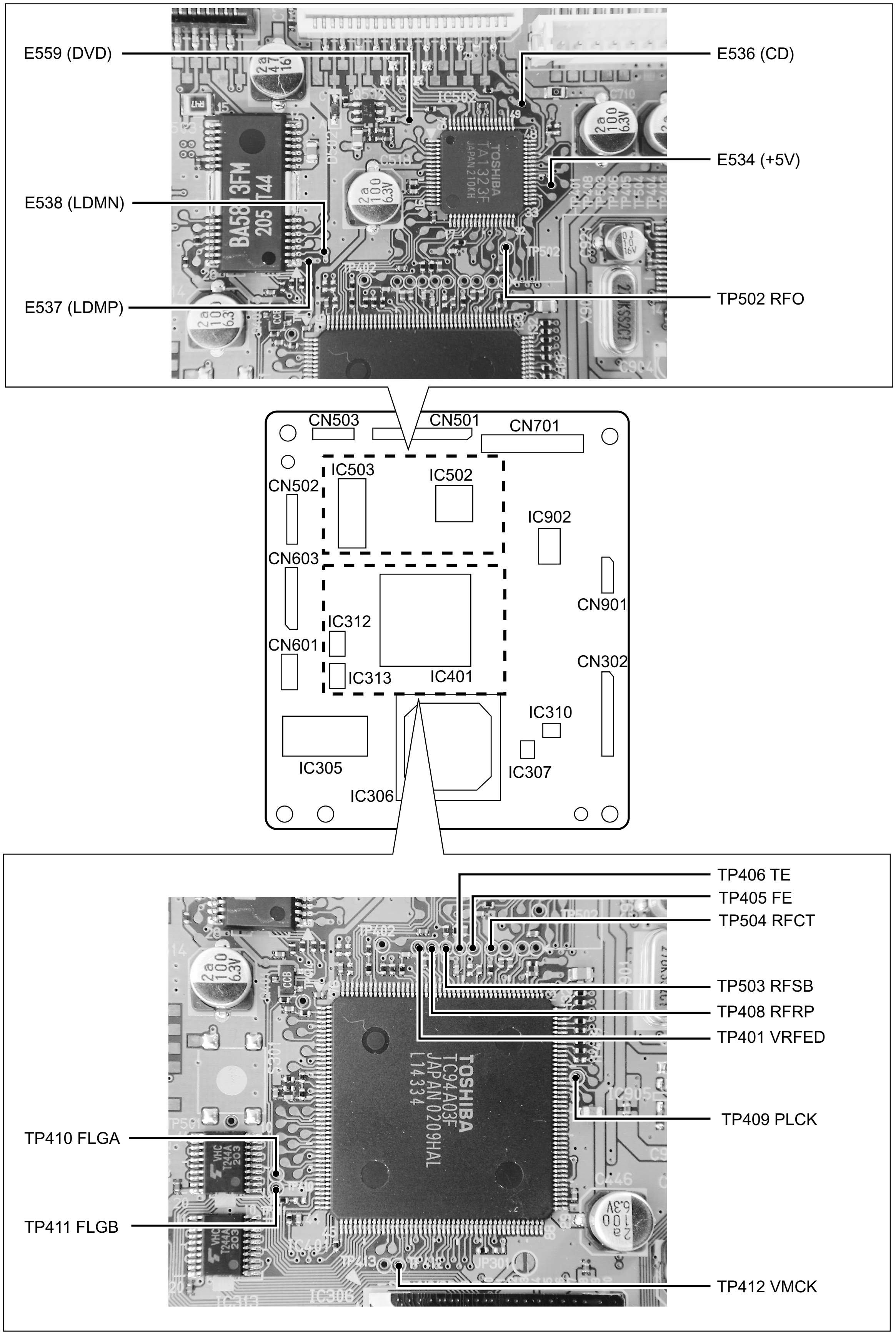

E559 (DVD)
E536 (CD)
E534 (+5V)
E538 (LDMN)
E537 (LDMP)
TP502 RFO
CN503
CN501
CN701
IC503
IC502
CN502
IC902
CN603
CN901
IC312
CN601
CN302
IC313
IC401
IC310
IC305
IC307
IC306
TP406 TE
TP405 FE
TP504 RFCT
TP503 RFSB
TP408 RFRP
TP401 VRFED
TP409 PLCK
TP410 FLGA
TP411 FLGB
TP412 VMCK

Fig. 1-3-21

SECTION 2
PART REPLACEMENT AND ADJUSTMENT PROCEDURES

CAUTIONS BEFORE STARTING SERVICING

Electronic parts are susceptible to static electricity and may easily damaged, so do not forget to take a proper grounding treatment as required.

Many screws are used inside the unit. To prevent missing, dropping, etc. of the screws, always use a magnetized screwdriver in servicing. Several kinds of screws are used and some of them need special cautions. That is, take care of the tapping screws securing molded parts and fine pitch screws used to secure metal parts. If they are used improperly, the screw holes will be easily damaged and the parts can not be fixed.

1. REPLACEMENT OF MECHANICAL PARTS (TYPE A)

1-1. Cabinet Replacement

1-1-1. Top Cover

1. Remove seven screws (1), then remove the top cover (2).

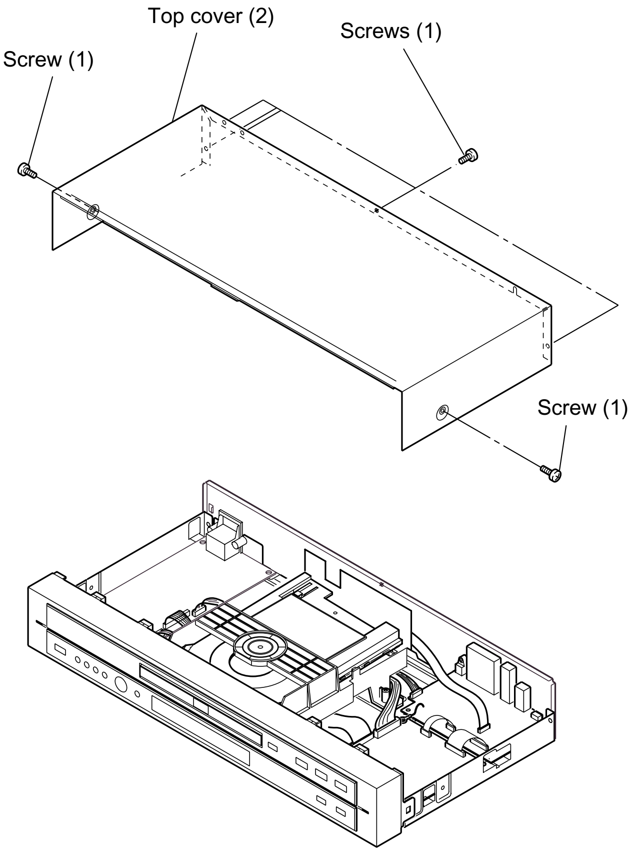

Top cover (2)
Screws (1)
Screw (1)
Screw (1)

Fig. 2-1-1

1-1-2. Tray Panel

<Tray Ejection>

1. Insert a paper clip, etc. into the hole A to eject the tray (1).

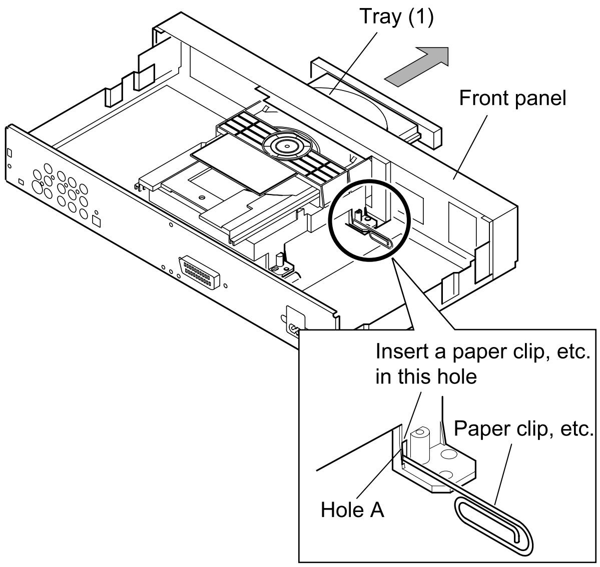

Tray (1)
Front panel
Insert a paper clip, etc.
in this hole
Paper clip, etc.
Hole A

Fig. 2-1-2

<Tray Panel Removal>

1. Eject the tray (1). (Refer to item 1-1-2.)
2. Twist the tray panel (2) a little in the arrow A direction with the tray (1) hold by hand to release two claws and lift up the tray panel (2) in the arrow B direction, then the tray panel (2) is removed.
3. When mounting the tray panel (2), insert the tray panel (2) along the grooves of the both sides of the tray (1) until clicking.

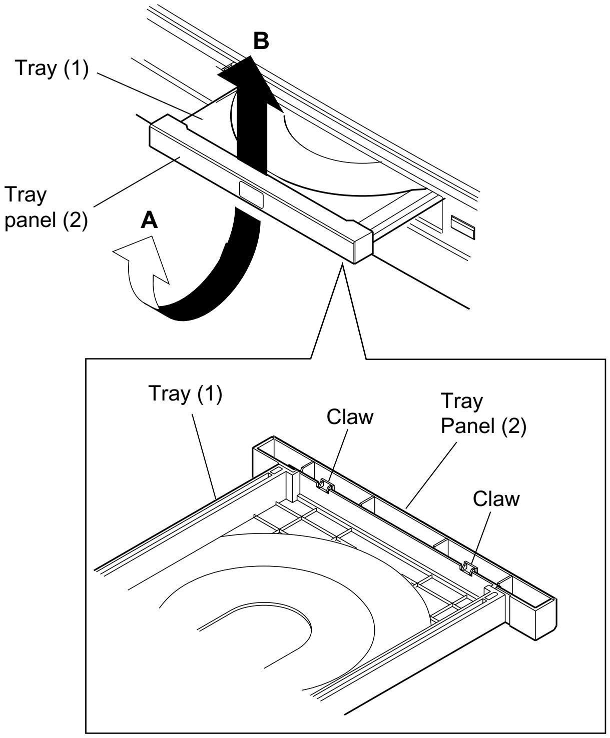

B
Tray (1)
Tray panel (2)
A
Tray (1)
Claw
Tray Panel (2)
Claw

Fig. 2-1-3

1-1-3. Front Panel

1. Remove one flexible cable (1).
2. Release four claws, then remove the front panel (2).

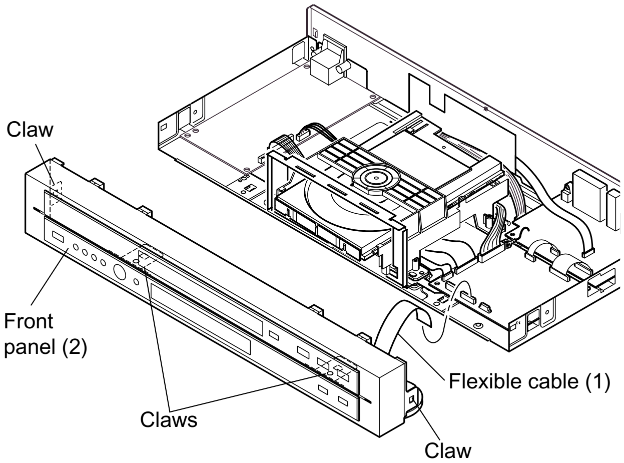

Claw
Front panel (2)
Claws
Flexible cable (1)
Claw

Fig. 2-1-4

1-1-4. Tray

1. Pull out the tray (1) towards you until it stops.
2. Lift up claw A with a minus screwdriver, and pull out the tray (1) towards you, then remove the tray (1).

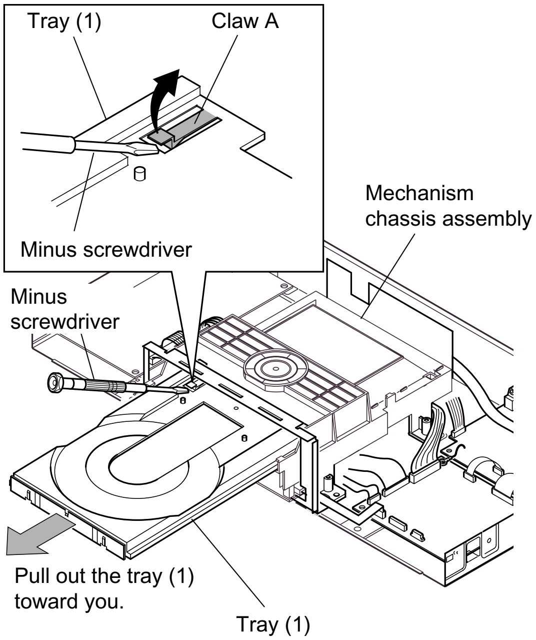

Tray (1)
Claw A
Minus screwdriver
Mechanism chassis assembly
Minus screwdriver
Pull out the tray (1) toward you.
Tray (1)

Fig. 2-1-5

1-1-5. Rear Panel

1. Remove ten screws (1), then remove the rear panel (2).

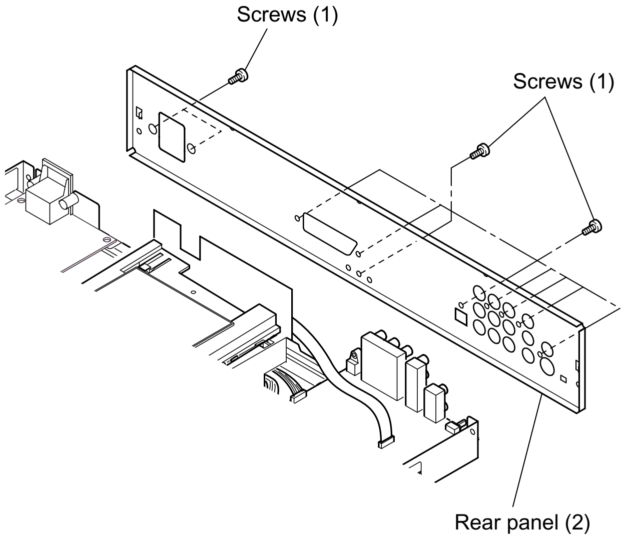

Screws (1)
Screws (1)
Rear panel (2)

Fig. 2-1-6

1-2. PC Board Replacement

1-2-1. Main PC Board

Note:

- Before removing the main PC board (4), be sure to short-circuit the laser diode output land.

  After replacing, open the land as it was after inserting the flexible cables (1).

1. Remove the top cover. (Refer to item 1-1-1.)
2. Eject the tray. (Refer to item 1-1-2.)
3. Remove six flexible cables (1) and remove one connector (2).
4. Remove four screws (3), then remove the main PC board (4).

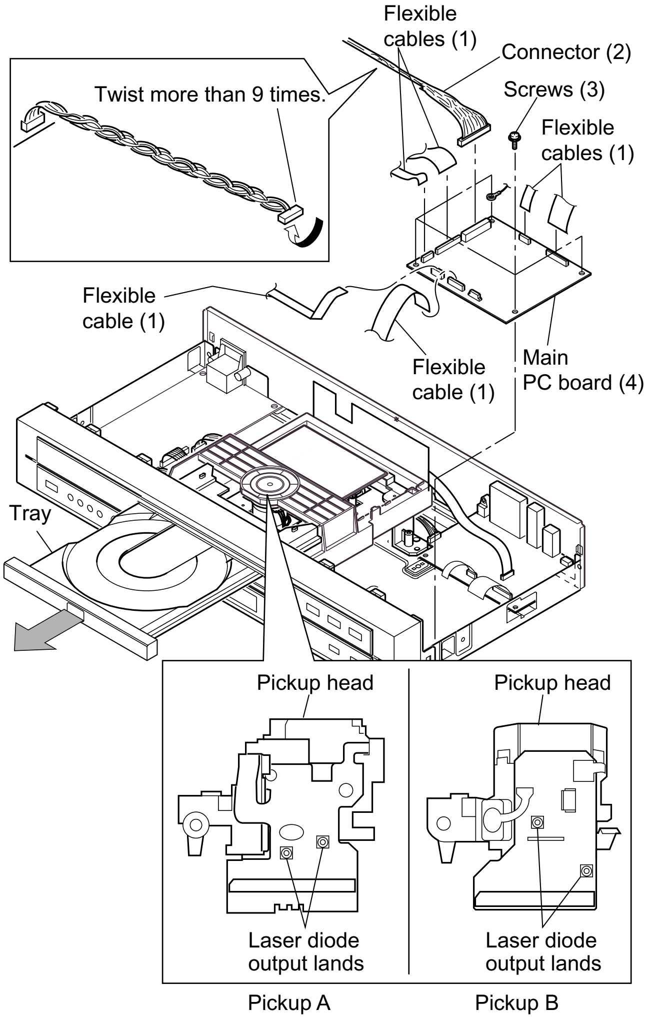

Twist more than 9 times.
Flexible cables (1)
Connector (2)
Screws (3)
Flexible cables (1)
Flexible cable (1)
Flexible cable (1)
Main PC board (4)
Tray
Pickup head
Pickup head
Laser diode output lands
Laser diode output lands
Pickup A
Pickup B

Fig. 2-1-7

1-2-2. Output PC Board

1. Remove the top cover. (Refer to item 1-1-1.)
2. Peel off three tapes (1) and remove the connector (2).
3. Remove three flexible cables (3).
4. Remove one screw (4), then remove the lug lead wire (5).
5. Remove seven screws (6), then remove the output PC board (7).

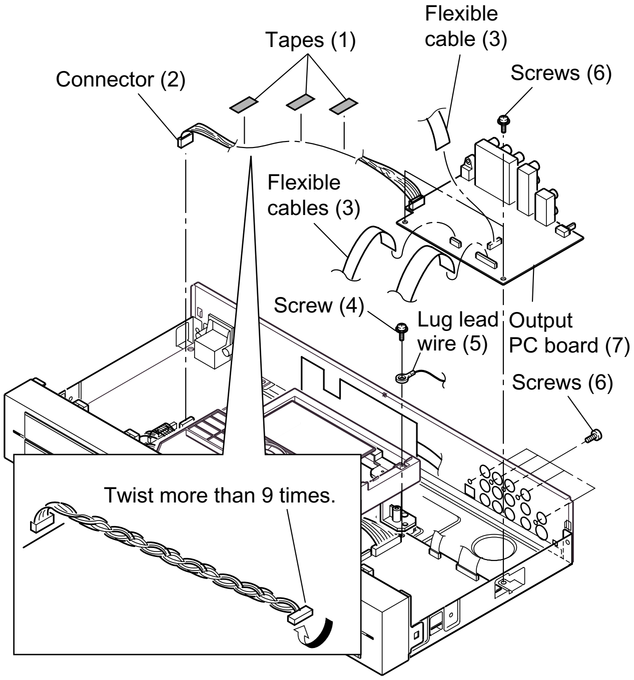

Tapes (1)
Flexible cable (3)
Connector (2)
Screws (6)
Flexible cables (3)
Screw (4)
Lug lead wire (5)
Output PC board (7)
Screws (6)
Twist more than 9 times.

Fig. 2-1-8

1-2-3. Power PC board

1. Peel off three tapes (1) and remove three connectors (2).
2. Remove four screws (3), then remove the power supply PC board (4).

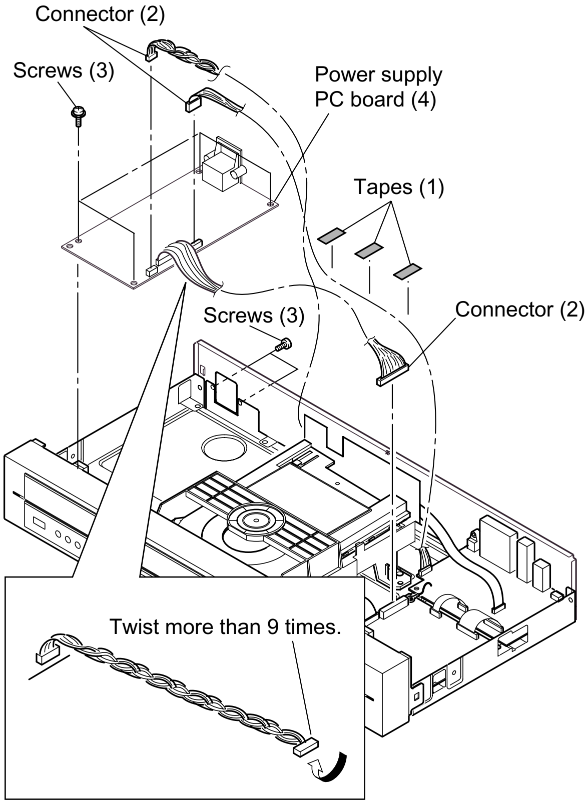

Connector (2)
Screws (3)
Power supply PC board (4)
Tapes (1)
Screws (3)
Connector (2)
Twist more than 9 times.

Fig. 2-1-9

1-2-4. Front PC Board

1. Remove the front panel. (Refer to item 1-1-3.)
2. Remove the flexible cable (1).
3. Remove nine screws (2), then remove the front display PC board (3).
4. Remove two screws (4), then remove the power switch PC board (5).
5. Remove three screws (6), then remove the ENTER switch (7).

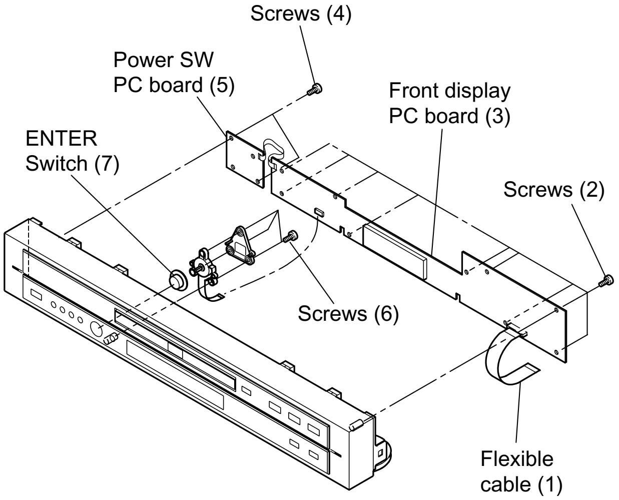

Screws (4)
Power SW PC board (5)
Front display PC board (3)
ENTER Switch (7)
Screws (2)
Screws (6)
Flexible cable (1)

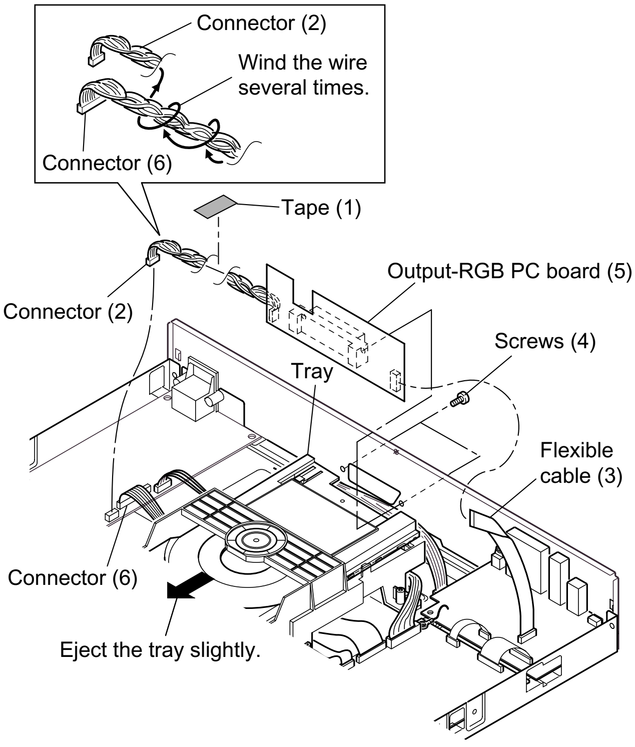
Fig. 2-1-10

1-2-5. Output-RGB PC Board

1. Eject the tray slightly.
2. Peel off the tape (1).
3. Remove the connector (2) and the flexible cable (3).
4. Remove two screws (4), then remove the output-RGB PC board (5).

Note:

- Wind the wire around the connector (6) several times when mounting the connector (2).



Connector (2)
Wind the wire several times.
Connector (6)
Tape (1)
Output-RGB PC board (5)
Connector (2)
Screws (4)
Tray
Flexible cable (3)
Connector (6)
Eject the tray slightly.

Fig. 2-1-11

1-3. Mechanism Parts

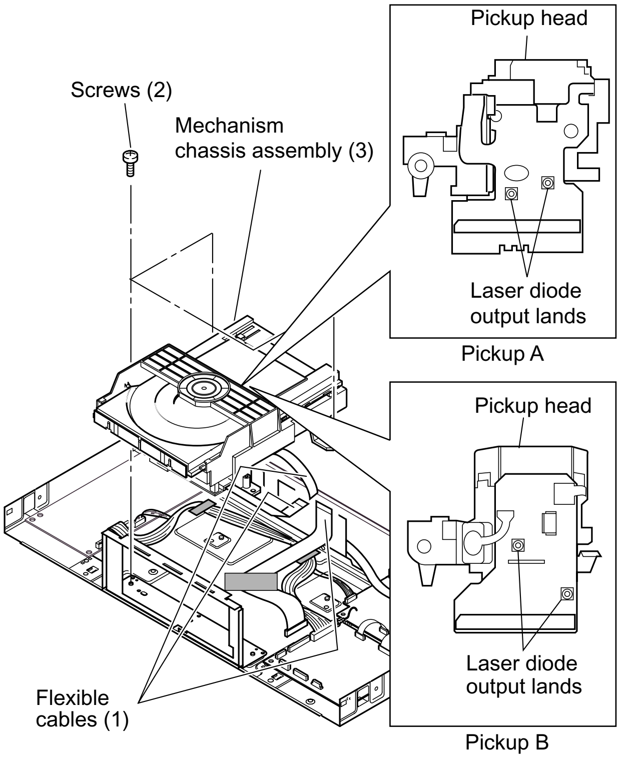
1-3-1. Mechanism Chassis Assembly

Note:

- When removing the mechanism chassis assembly (3), be sure to short-circuit the laser diode output land before removing the connector and the flexible cables.

  After replacing, open the land as it was after inserting the connector and flexible cables.

1. Remove the front panel. (Refer to item 1-1-3.)
2. Remove three flexible cables (1).
3. Remove four screws (2), then remove the mechanism chassis assembly (3).



Screws (2)
Mechanism chassis assembly (3)
Pickup head
Laser diode output lands
Pickup A
Pickup head
Laser diode output lands
Pickup B
Flexible cables (1)

Fig. 2-1-12

2. REPLACEMENT OF MECHANICAL PARTS (TYPE B)

2-1. Cabinet Replacement

2-1-1. Top Cover

1. Remove seven screws (1), then remove the top cover (2).

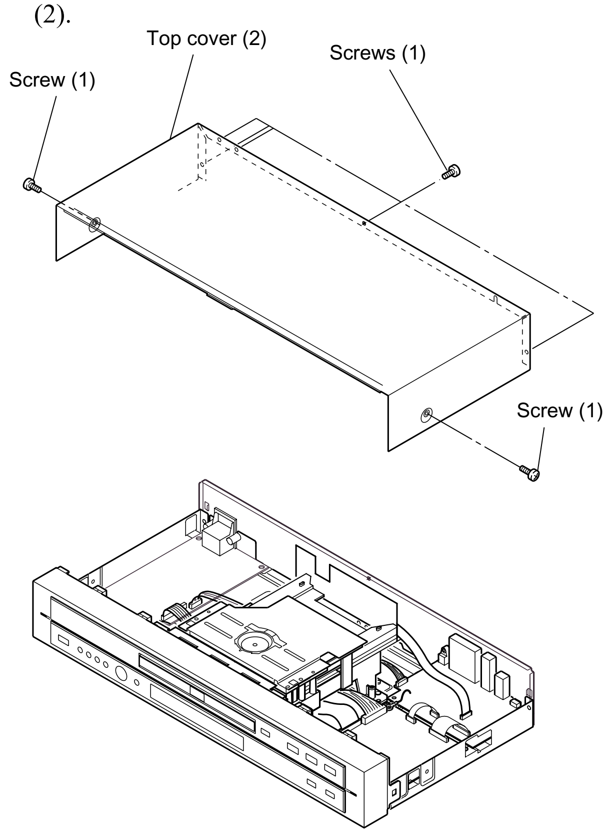

Top cover (2)
Screws (1)
Screw (1)
Screw (1)

Fig. 2-1-13

2-1-2. Clamper Stay

<Removal>

1. Remove two screws (1).
2. Release two claws and remove the clamper stay (2).

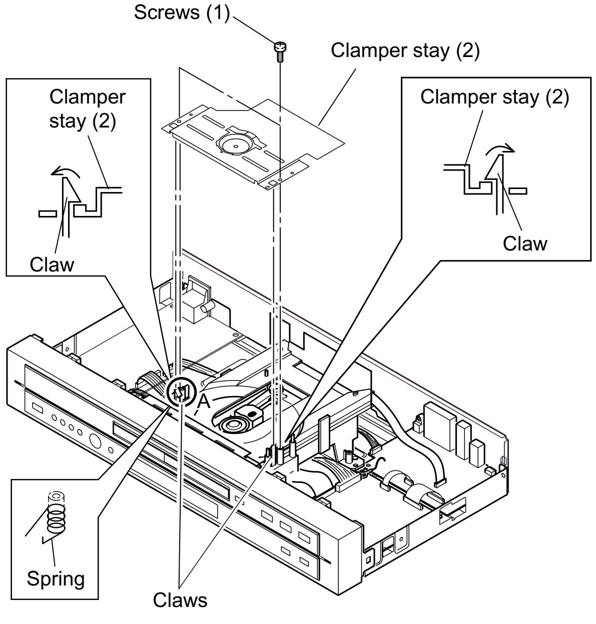

Screws (1)
Clamper stay (2)
Clamper stay (2)
Clamper stay (2)
Claw
Claw
A
Spring
Claws

Fig. 2-1-14

<Mounting >

1. The spring for tray side pressure is inserted into the portion “A”. (Refer to Fig. 2-1-14.)
2. By referring to Fig. 2-1-15, insert the spring normally and mount the clamper stay.

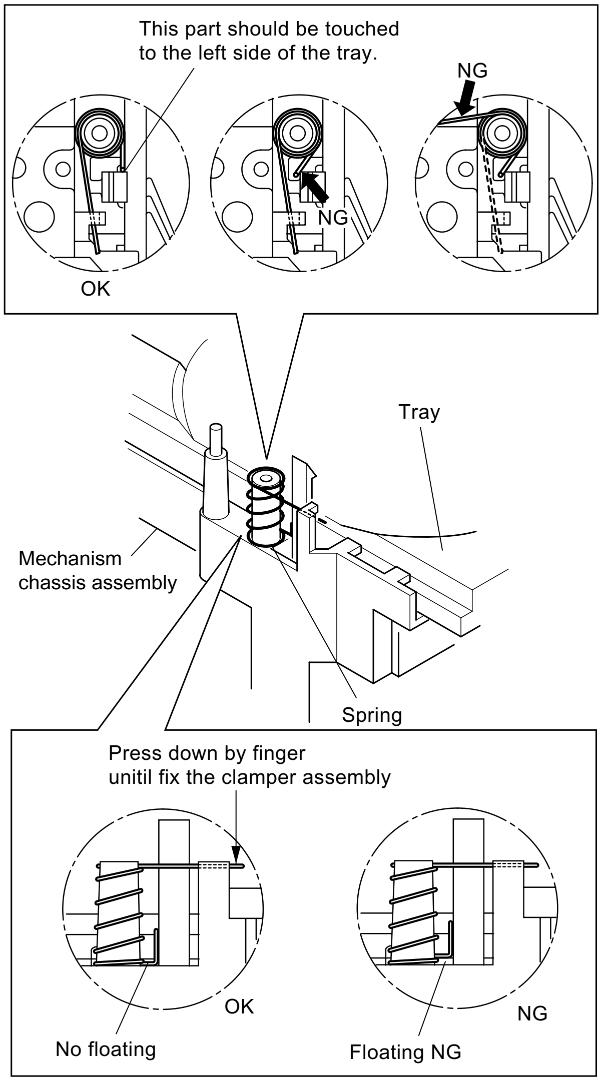

This part should be touched
to the left side of the tray.
NG
NG
OK
Tray
Mechanism
chassis assembly
Spring
Press down by finger
unitil fix the clamper assembly
OK
NG
No floating
Floating NG

Fig. 2-1-15

2-1-3. Tray Panel

<Tray Ejection>

1. Slide the slider (2) of the mechanism chassis assembly (1) with a screwdriver, etc. in the arrow direction, so that the tray (3) is ejected.

Note:

- Take care not to damage the pickup and other parts.

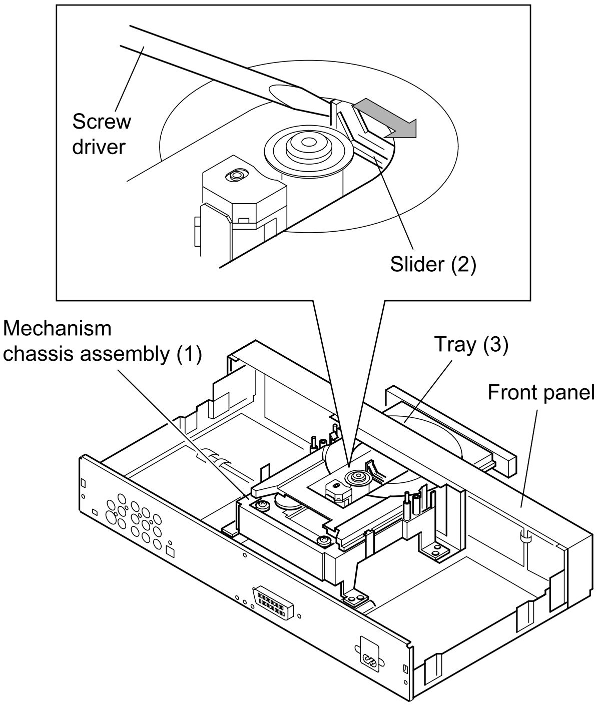

Screw driver
Slider (2)
Mechanism chassis assembly (1)
Tray (3)
Front panel

Fig. 2-1-16

<Tray Panel Removal>

1. Eject the tray (3).
2. Twist the tray panel (4) a little in the arrow A direction with the tray (3) hold by hand to release two claws and lift up the tray panel (4) in the arrow B direction, then the tray panel (4) is removed. (Refer to Fig. 2-1-17.)
3. When mounting the tray panel (4), insert the tray panel (4) along the grooves of the both sides of the tray (3) until clicking.

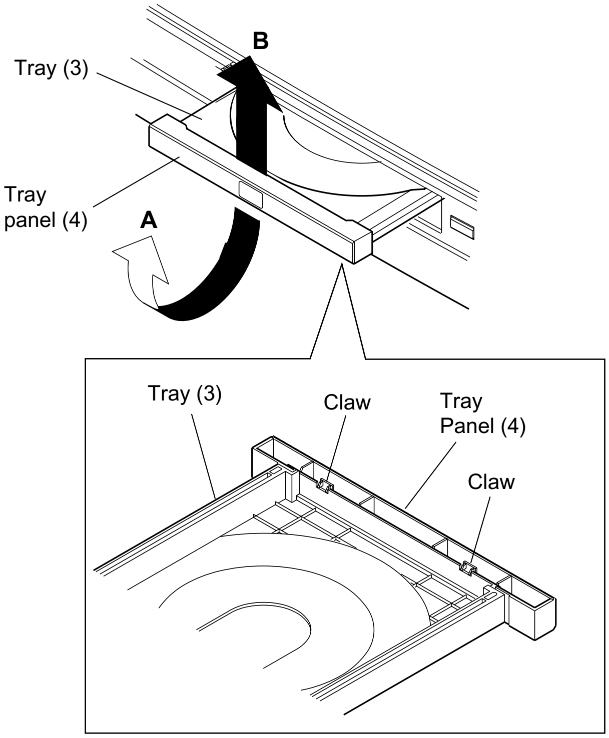

B
Tray (3)
Tray panel (4)
A
Tray (3)
Claw
Tray Panel (4)
Claw

Fig. 2-1-17

2-1-4. Front Panel and Tray

1. Remove the flexible cable (1).
2. Release four claws and remove the front panel (2).
3. Pull out the tray (3) towards you.

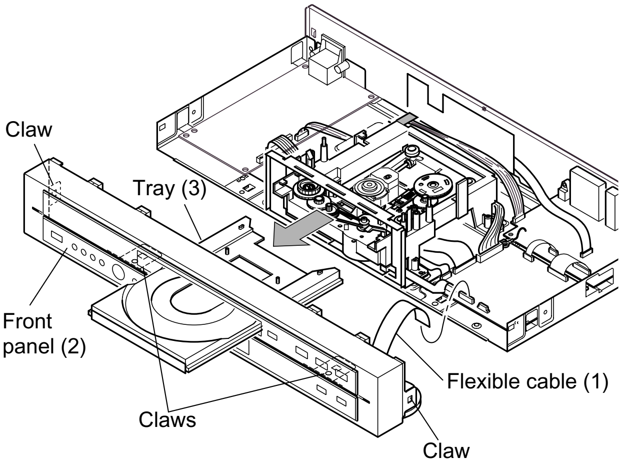

Claw
Tray (3)
Front panel (2)
Claws
Flexible cable (1)
Claw

Fig. 2-1-18

Note:

- Insert the tray (3) with the front side of the pickup mechanism assembly descended. (The slider positions to the left side.)
- The gears are required to match their phases each other. After setting the gear (4) as shown in the figure “A”, insert the tray (3). When inserting a tray (3), push the rack gear side shown by the arrow.

- Confirm that the mark of the gear matches with the triangle mark on the reverse side of the tray in the tray close status. (The gear is rotated with the slider locks.) (Refer to Fig. B.)

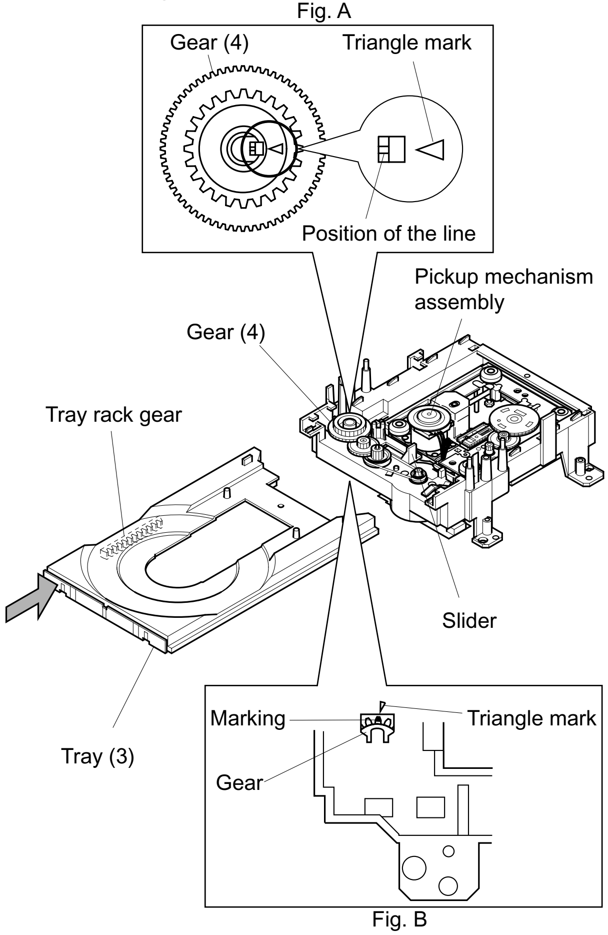


Fig. A
Gear (4)
Triangle mark
Position of the line
Pickup mechanism assembly
Gear (4)
Tray rack gear
Slider
Tray (3)
Marking
Triangle mark
Gear
Fig. B

Fig. 2-1-19

2-1-5. Rear Panel

1. Remove ten screws (1), then remove the rear panel (2).

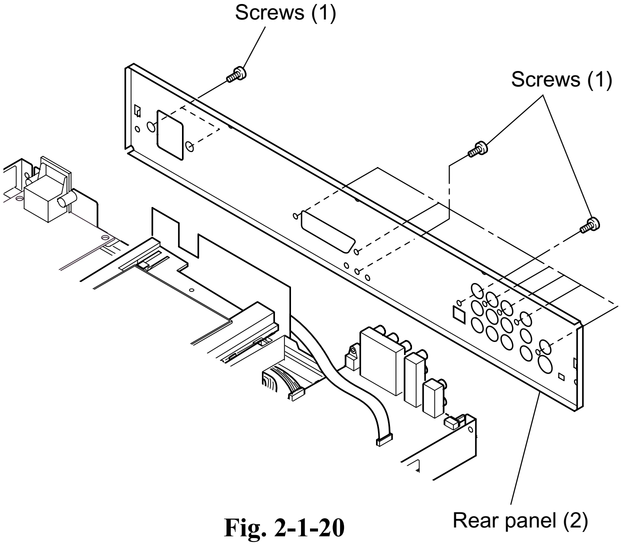

Screws (1)
Screws (1)
Rear panel (2)

Fig. 2-1-20

2-2. PC Board Replacement

2-2-1. Main PC Board

Note:

- Before removing the main PC board (4), be sure to short-circuit the laser diode output land.

  After replacing, open the land as it was after inserting the flexible cables (1).

1. Remove the top cover. (Refer to item 2-1-1.)
2. Eject the tray. (Refer to item 2-1-3.)
3. Remove six flexible cables (1) and remove one connector (2).
4. Remove four screws (3), then remove the main PC board (4).

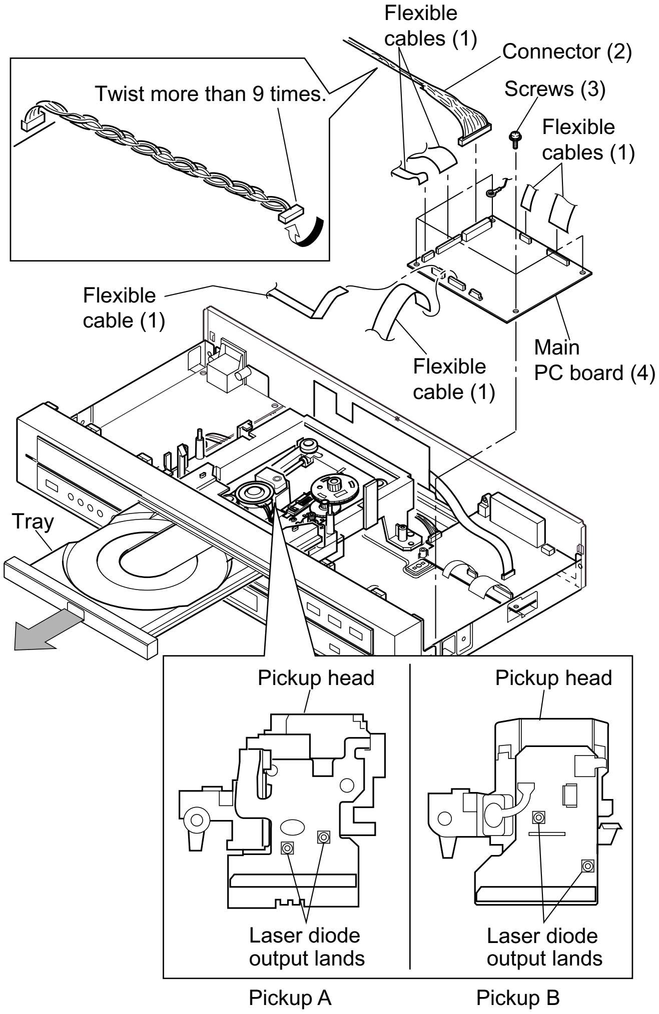

Flexible cables (1)
Connector (2)
Twist more than 9 times.
Screws (3)
Flexible cables (1)
Flexible cable (1)
Flexible cable (1)
Main PC board (4)
Tray
Pickup head
Pickup head
Laser diode output lands
Laser diode output lands
Pickup A
Pickup B

Fig. 2-1-21

2-2-2. Output PC Board

1. Remove the top cover. (Refer to item 2-1-1.)
2. Peel off three tapes (1) and remove the connector (2).
3. Remove three flexible cables (3).
4. Remove one screw (4), then remove the lug lead wire (5).
5. Remove seven screws (6), then remove the output PC board (7).

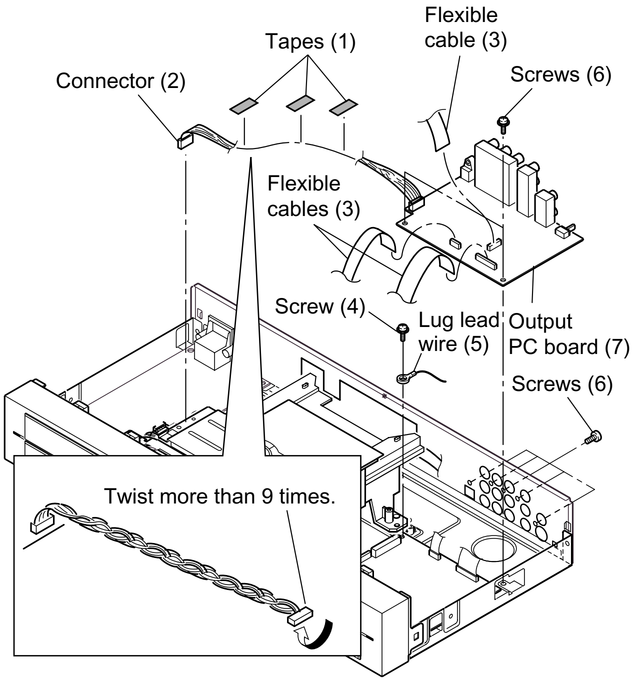

Tapes (1)
Flexible cable (3)
Connector (2)
Screws (6)
Flexible cables (3)
Screw (4)
Lug lead wire (5)
Output PC board (7)
Screws (6)
Twist more than 9 times.

Fig. 2-1-22

2-2-3. Power PC board

1. Peel off three tapes (1) and remove three connectors (2).
2. Remove four screws (3), then remove the power supply PC board (4).

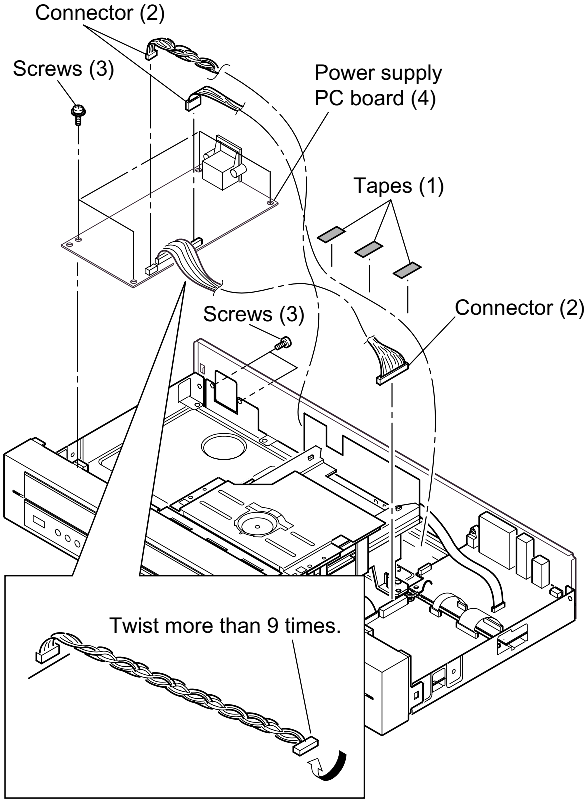

Connector (2)
Screws (3)
Power supply PC board (4)
Tapes (1)
Screws (3)
Connector (2)
Twist more than 9 times.

Fig. 2-1-23

2-2-4. Front PC Board

1. Remove the front panel. (Refer to item 2-1-4.)
2. Remove the flexible cable (1).
3. Remove nine screws (2), then remove the front display PC board (3).
4. Remove two screws (4), then remove the power switch PC board (5).
5. Remove three screws (6), then remove the ENTER switch (7).

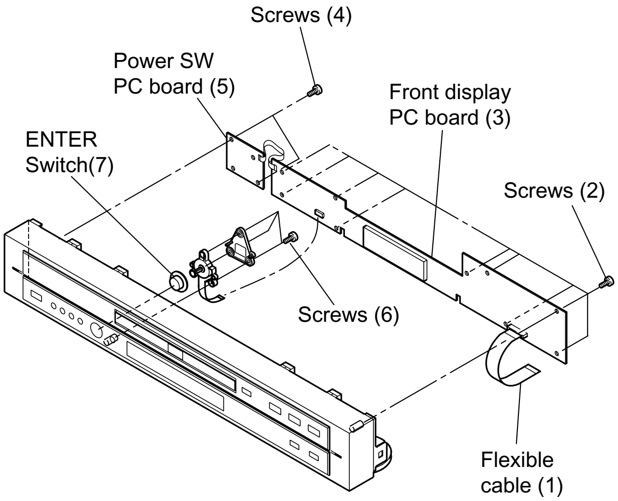

Screws (4)
Power SW
PC board (5)
Front display
PC board (3)
ENTER
Switch(7)
Screws (2)
Screws (6)
Flexible
cable (1)

Fig. 2-1-24

2-2-5. Output-RGB PC Board

1. Eject the tray slightly.
2. Peel off the tape (1).
3. Remove the connector (2) and the flexible cable (3).
4. Remove two screws (4), then remove the output-RGB PC board (5).

Note:

- Wind the wire around the connector (6) several times when mounting the connector (2).

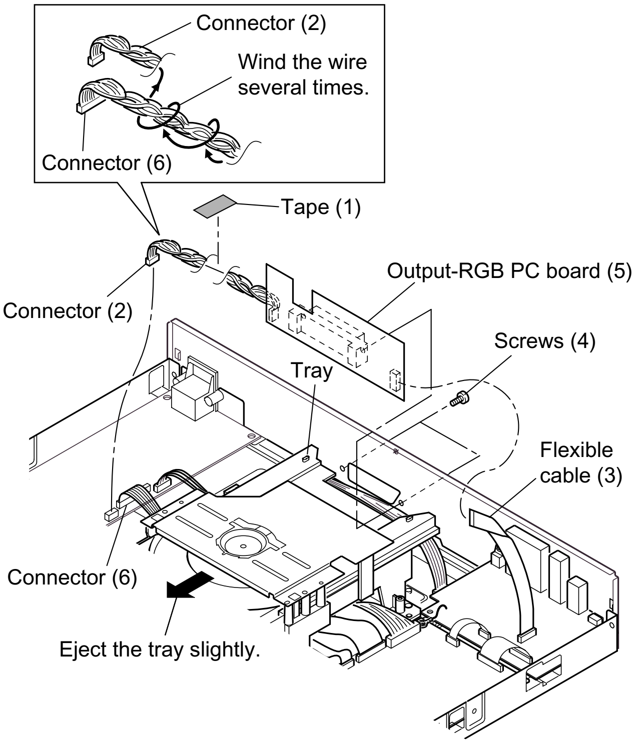

Connector (2)
Wind the wire
several times.
Connector (6)
Tape (1)
Output-RGB PC board (5)
Connector (2)
Screws (4)
Tray
Flexible
cable (3)
Connector (6)
Eject the tray slightly.

Fig. 2-1-25

2-3. Mechanism Parts

2-3-1. Mechanism Chassis Assembly

Note:

- When removing the mechanism chassis assembly (3), be sure to short-circuit the laser diode output land before removing the connector and the flexible cables.

  After replacing, open the land as it was after inserting the connector and flexible cables.

1. Remove the tray. (Refer to items 2-1-3 and 2-1-4.)
2. Remove three flexible cables (1).
3. Remove four screws (2), then remove the mechanism chassis assembly (3).

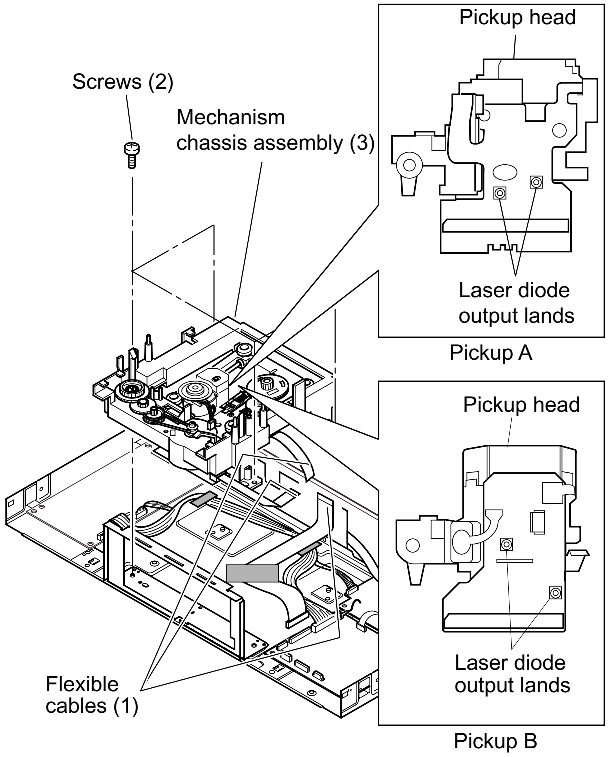

Screws (2)
Mechanism chassis assembly (3)
Pickup head
Laser diode output lands
Pickup A
Pickup head
Laser diode output lands
Pickup B
Flexible cables (1)

Fig. 2-1-26

SECTION 3
SERVICING DIAGRAMS

1. STANDING PC BOARDS FOR SERVICING

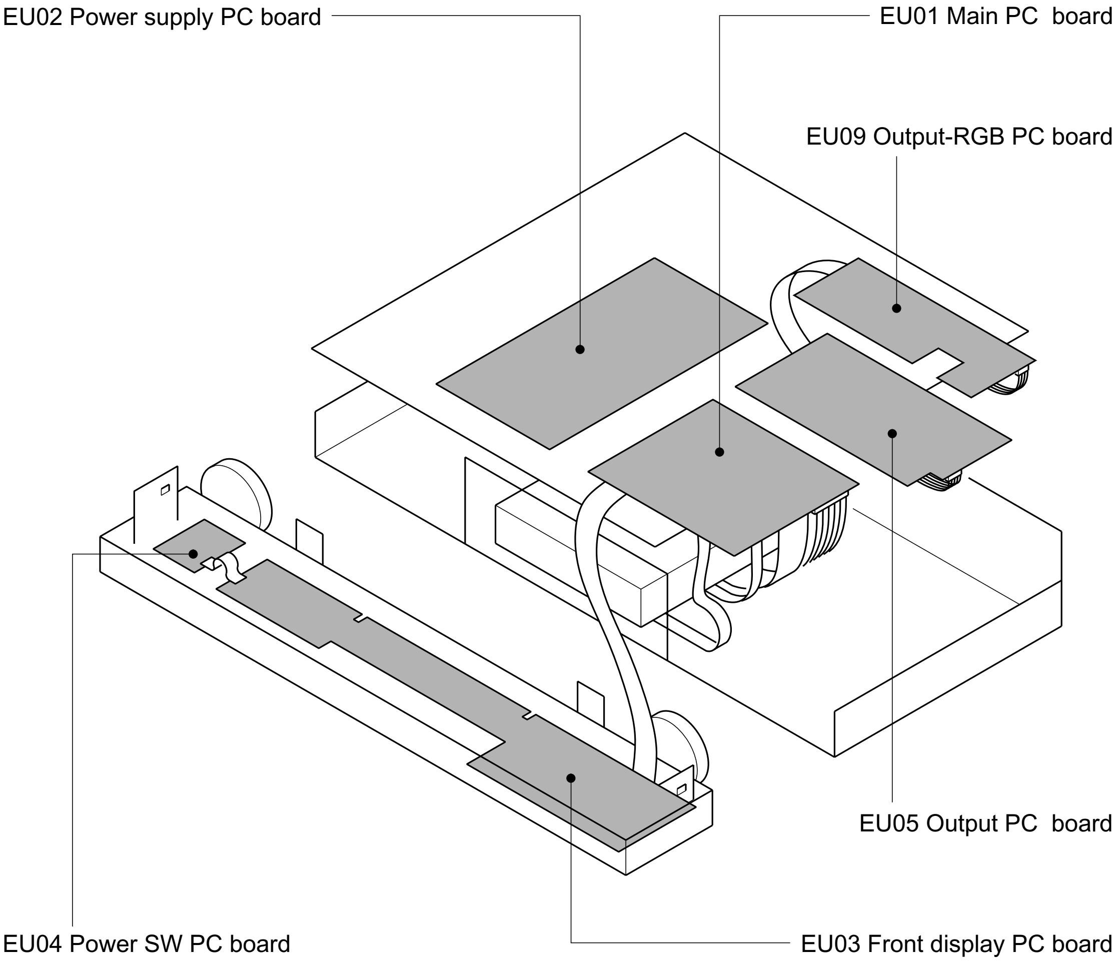

EU02 Power supply PC board
EU01 Main PC board
EU09 Output-RGB PC board
EU05 Output PC board
EU04 Power SW PC board
EU03 Front display PC board

Fig. 3-1-1

2. CIRCUIT SYMBOLS AND SUPPLEMENTARY EXPLANATION

2-1. Precautions for Part Replacement

- In the schematic diagram, parts marked ⚠ (ex. ⚠ F801) are critical part to meet the safety regulations, so always use the parts bearing specified part codes (SN) when replacing them.
- Using the parts other than those specified shall violate the regulations, and may cause troubles such as operation failures, fire etc.

2-2. Solid Resistor Indication

Unit	None .... Ω K .... kΩ M .... MΩ
Tolerance	None .... ±5% B .... ±0.1% C .... ±0.25% D .... ±0.5% F .... ±1% G .... ±2% K .... ±10% M .... ±20%
Rated Wattage	(1) Chip Parts None .... 1/16W (2) Other Parts None .... 1/6W Other than above, described in the Circuit Diagram.
Type	None .... Carbon film S .... Solid R .... Oxide metal film M .... Metal film W .... Cement FR .... Fusible

Eg. 1

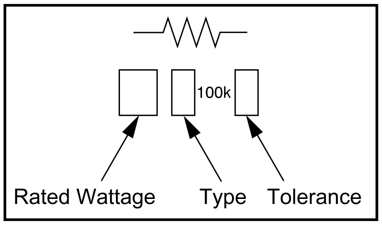

100k
Rated Wattage
Type
Tolerance

Fig. 3-2-1

2-3. Capacitance Indication

Symbol	⊣⊢ + ... Electrolytic, Special electrolytic ⊣⊢ NP .... Non polarity electrolytic ⊣⊢ .... Ceramic, plastic ⊣⊢ M .... Film ⊣↗⊢ .... Trimmer
Unit	None .... F μ .... μF p .... pF
Rated voltage	None .... 50V For other than 50V and electrolytic capacitors, described in the Circuit Diagram.
Tolerance	(1) Ceramic, plastic, and film capacitors of which capacitance are more than 10 pF. None .... ±5% or more B .... ±0.1% C .... ±0.25% D .... ±0.5% F .... ±1% G .... ±2% (2) Ceramic, plastic, and film capacitors of which capacitance are 10 pF or less. None .... more than ±5 pF B .... ±0.1 pF C .... ±0.25 pF (3) Electrolytic, Trimmer Tolerance is not described.
Temperature characteristic (Ceramic capacitor)	None .... SL For others, temperature characteristics are described. (For capacitors of 0.01 μF and no indications are described as F.)
Static electricity capacity (Ceramic capacitor)	Sometimes described with abbreviated letters as shown in Eg. 3.

Eg. 2

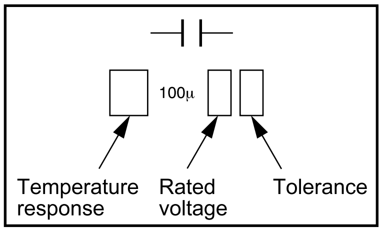

100μ
Temperature response
Rated voltage
Tolerance

Fig. 3-2-2

Eg. 3

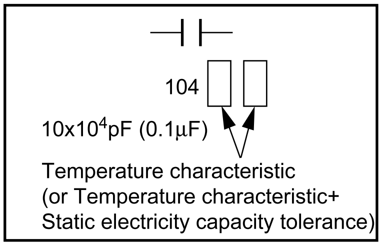

104
10x10^{4}pF (0.1μF)
Temperature characteristic
(or Temperature characteristic+
Static electricity capacity tolerance)

Fig. 3-2-3

2-4. Inductor Indication

Unit	None .... H µ .... µH m .... mH
Tolerance	None .... ±5% B .... ±0.1% C .... ±0.25% D .... ±0.5% F .... ±1% G .... ±2% K .... ±10% M .... ±20%

Eg. 4

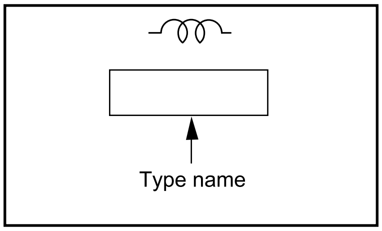


Fig. 3-2-4

2-5. Waveform and Voltage Measurement

- The waveforms for CD/DVD and RF shown in the circuit diagrams are obtained when a test disc is played back.
- All voltage values except the waveforms are expressed in DC and measured by a digital voltmeter.

2-6. Others

- The parts indicated with "NC" or "KETU" etc. are not used in the circuits of this model.

Eg. 5

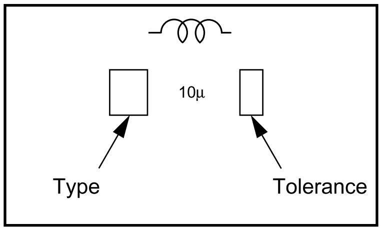


Fig. 3-2-5

3. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

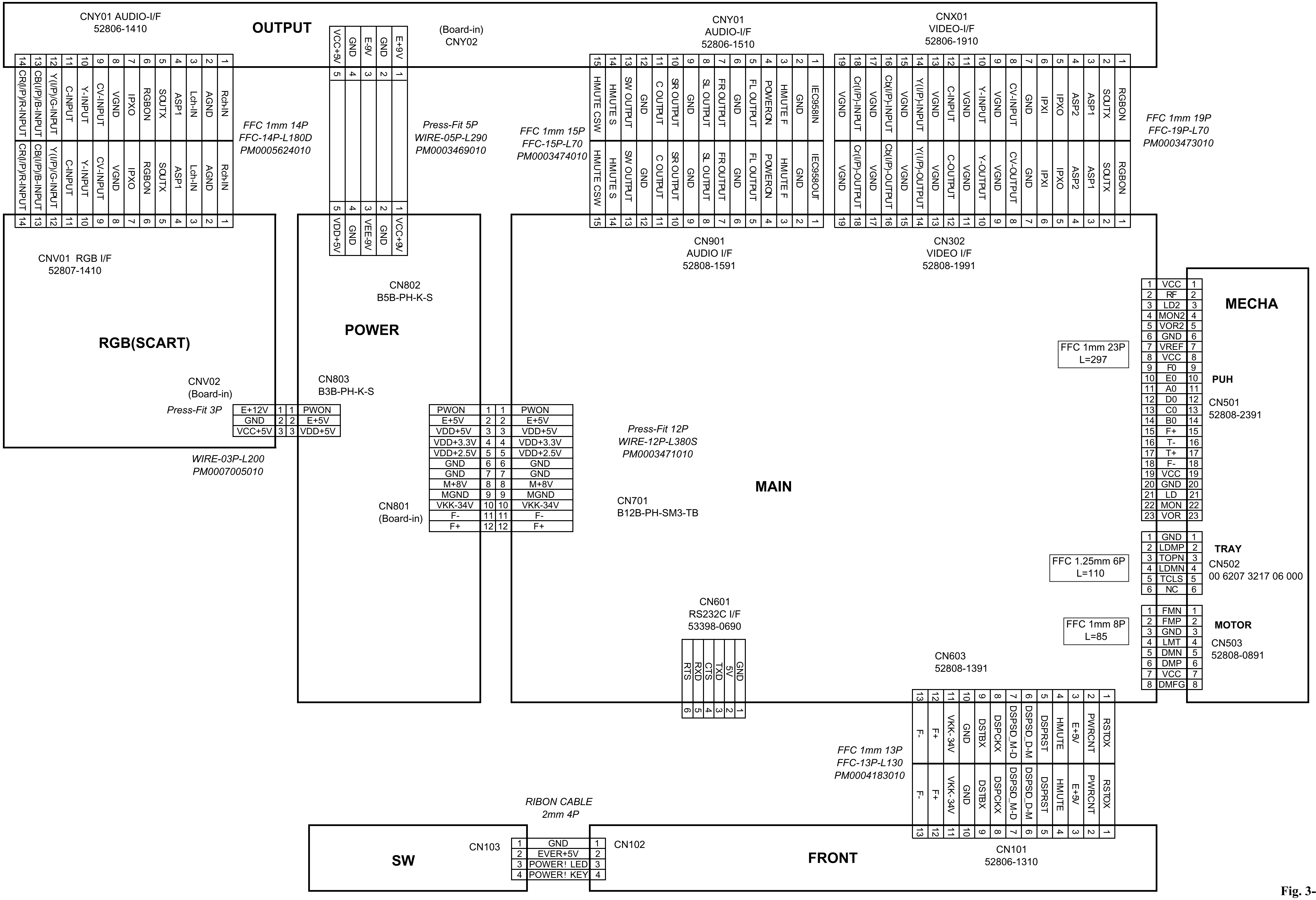

OUTPUT
CNY01 AUDIO-I/F
52806-1410
(Board-in)
CNY02
CNY01
AUDIO-I/F
52806-1510
CNX01
VIDEO-I/F
52806-1910
1 Rch-IN
2 AGND
3 Lch-IN
4 ASP1
5 SQUTX
6 RGBON
7 IPXO
8 VGND
9 CV-INPUT
10 Y-INPUT
11 C-INPUT
12 Y(I/P)/G-INPUT
13 CB(I/P)/B-INPUT
14 CR(I/P)/R-INPUT
FFC 1mm 14P
FFC-14P-L180D
PM0005624010
1 E+9V
2 GND
3 E-9V
4 GND
5 VCC+5V
Press-Fit 5P
WIRE-05P-L290
PM0003469010
1 VCC+9V
2 GND
3 VEE-9V
4 GND
5 VDD+5V
FFC 1mm 15P
FFC-15P-L70
PM0003474010
1 IEC958IN
2 GND
3 HMUTE F
4 POWERON
5 FL OUTPUT
6 GND
7 FR OUTPUT
8 SL OUTPUT
9 GND
10 SR OUTPUT
11 C OUTPUT
12 GND
13 SW OUTPUT
14 HMUTE S
15 HMUTE CSW
1 IEC958OUT
1 RGBON
2 SQUTX
3 ASP1
4 ASP2
5 IPXO
6 IPXI
7 GND
8 CV-INPUT
9 VGND
10 Y-INPUT
11 VGND
12 C-INPUT
13 VGND
14 Y(I/P)-INPUT
15 VGND
16 Cb(I/P)-INPUT
17 VGND
18 Cr(I/P)-INPUT
19 VGND
8 CV-OUTPUT
10 Y-OUTPUT
12 C-OUTPUT
14 Y(I/P)-OUTPUT
16 Cb(I/P)-OUTPUT
18 Cr(I/P)-OUTPUT
FFC 1mm 19P
FFC-19P-L70
PM0003473010
CNV01 RGB I/F
52807-1410
RGB(SCART)
CNV02
(Board-in)
Press-Fit 3P
E+12V 1 1 PWON
GND 2 2 E+5V
VCC+5V 3 3 VDD+5V
WIRE-03P-L200
PM0007005010
CN802
B5B-PH-K-S
POWER
CN803
B3B-PH-K-S
CN801
(Board-in)
1 PWON
2 E+5V
3 VDD+5V
4 VDD+3.3V
5 VDD+2.5V
6 GND
7 GND
8 M+8V
9 MGND
10 VKK-34V
11 F-
12 F+
CN901
AUDIO I/F
52808-1591
CN302
VIDEO I/F
52808-1991
Press-Fit 12P
WIRE-12P-L380S
PM0003471010
CN701
B12B-PH-SM3-TB
MAIN
MECHA
1 VCC
2 RF
3 LD2
4 MON2
5 VOR2
6 GND
7 VREF
8 VCC
9 F0
10 E0
11 A0
12 D0
13 C0
14 B0
15 F+
16 T-
17 T+
18 F-
19 VCC
20 GND
21 LD
22 MON
23 VOR
FFC 1mm 23P
L=297
PUH
CN501
52808-2391
1 GND
2 LDMP
3 TOPN
4 LDMN
5 TCLS
6 NC
FFC 1.25mm 6P
L=110
TRAY
CN502
00 6207 3217 06 000
1 FMN
2 FMP
3 GND
4 LMT
5 DMN
6 DMP
7 VCC
8 DMFG
FFC 1mm 8P
L=85
MOTOR
CN503
52808-0891
CN601
RS232C I/F
53398-0690
1 GND
2 5V
3 TXD
4 CTS
5 RXD
6 RTS
CN603
52808-1391
1 RSTDX
2 PWRCNT
3 E+5V
4 HMUTE
5 DSPRST
6 DSPSD_D-M
7 DSPSD_M-D
8 DSPCKX
9 DSTBX
10 GND
11 VKK-34V
12 F+
13 F-
FFC 1mm 13P
FFC-13P-L130
PM0004183010
RIBON CABLE
2mm 4P
SW
CN103
1 GND
2 EVER+5V
3 POWER! LED
4 POWER! KEY
CN102
FRONT
CN101
52806-1310

Fig. 3-3-1

SECTION 4
PARTS LIST

SAFETY PRECAUTION

The parts identified by ! (⚠) mark are critical for safety. Replace only with part number specified.

The mounting position of replacement is to be identical with originals.

The substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

NOTICE

The part number must be used when ordering parts in order to assist in processing, be sure to include the model number and description.

ABBREVIATIONS

1. Integrated Circuit (IC)

2. Capacitor (Cap)

- **Capacitance Tolerance (for Nominal Capacitance more than 10pF)**

Table 4-2-1

Symbol	B	C	D	F	G	J	K	M	N
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20	± 30

Symbol	P	Q	T	U	V	W	X	Y	Z
Tolerance %	+ 100 0	+ 30 – 10	+ 50 – 10	+ 75 – 10	+ 20 – 10	+ 100 – 10	+ 40 – 20	+ 150 – 10	+ 80 – 20

Ex. 10MF J = 10µF ± 5%

- **Capacitance Tolerance (for Nominal Capacitance 10pF or less)**

Table 4-2-2

Symbol	B	C	D	F	G
Tolerance pF	± 0.1	± 0.25	± 0.5	± 1	± 2

Ex. 10pF G = 10pF ± 2pF

3. Resistor (Res)

- **Resistance tolerance**

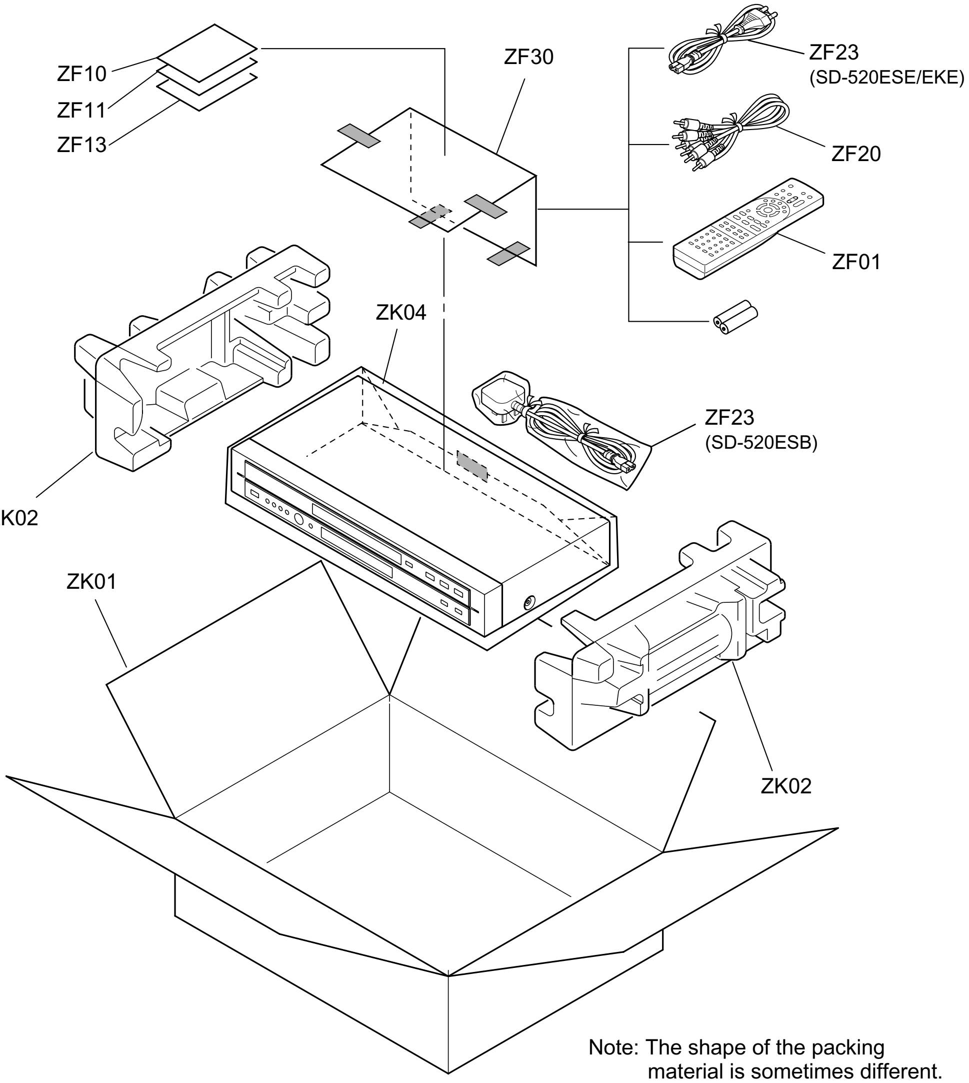
Table 4-3-1

Symbol	B	C	D	F	G	J	K	M
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20

Ex. 470ohmJ = 470ohm± 5%

4. EXPLODED VIEWS

4-1. Packing Assembly


ZF10
ZF11
ZF13
ZF30
ZF23
(SD-520ESE/EKE)
ZF20
ZF01
ZK04
ZF23
(SD-520ESB)
ZK02
ZK01
ZK02

Note: The shape of the packing material is sometimes different.

Fig. 4-4-1

4-2. Chassis Assembly (Type A)

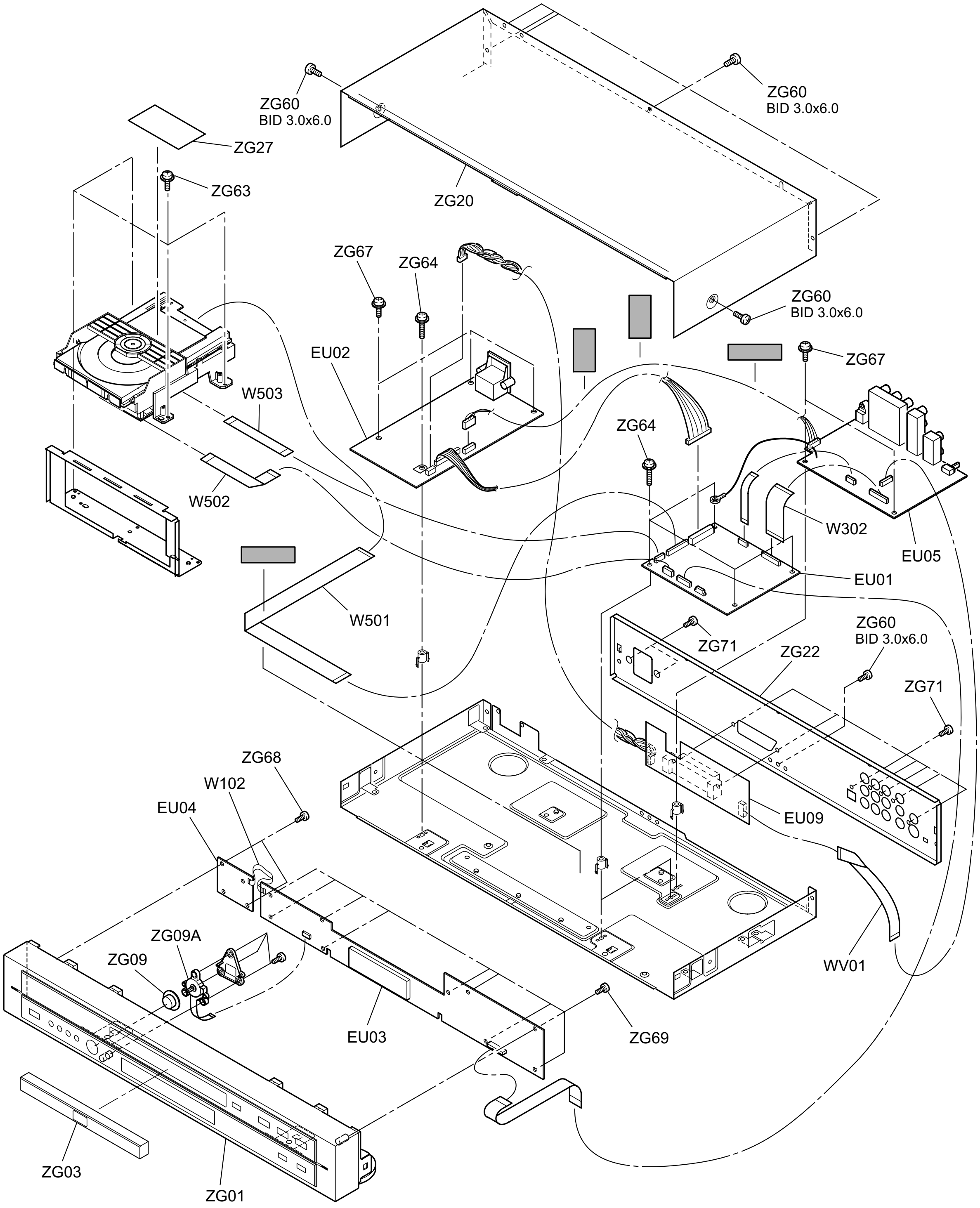

ZG60
BID 3.0x6.0
ZG60
BID 3.0x6.0
ZG27
ZG63
ZG20
ZG67
ZG64
ZG60
BID 3.0x6.0
EU02
ZG67
W503
ZG64
W502
W302
EU05
EU01
W501
ZG71
ZG60
BID 3.0x6.0
ZG22
ZG71
ZG68
W102
EU04
EU09
ZG09A
ZG09
WV01
EU03
ZG69
ZG03
ZG01

Fig. 4-4-2

4-3. Mechanism Assembly (Type A)

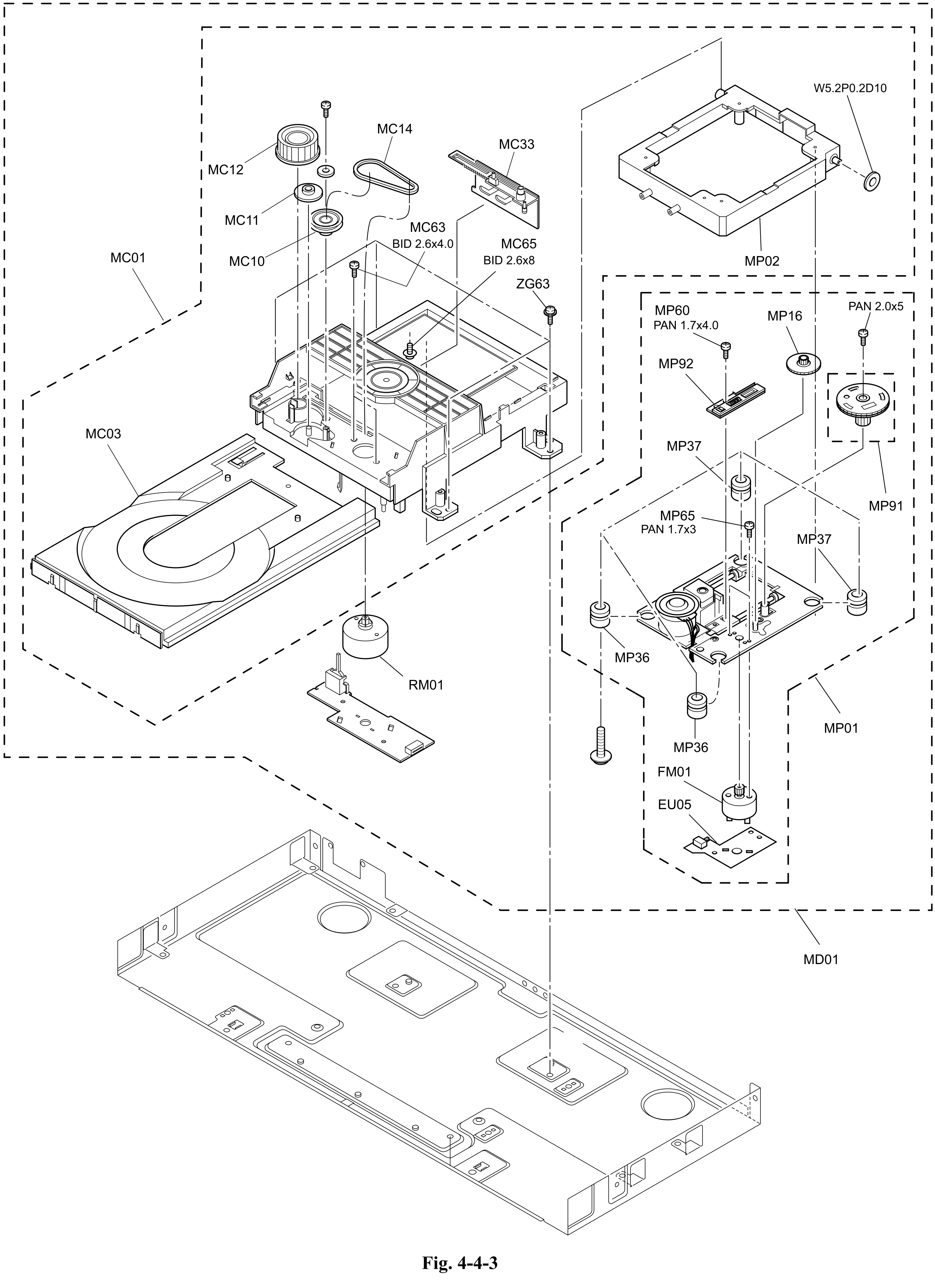

W5.2P0.2D10
MC14
MC33
MC12
MC11
MC63
BID 2.6x4.0
MC65
BID 2.6x8
MC10
MC01
MP02
ZG63
MP60
PAN 1.7x4.0
MP16
PAN 2.0x5
MP92
MC03
MP37
MP91
MP65
PAN 1.7x3
MP37
MP36
RM01
MP01
MP36
FM01
EU05
MD01

Fig. 4-4-3

4-4. Chassis Assembly (Type B)

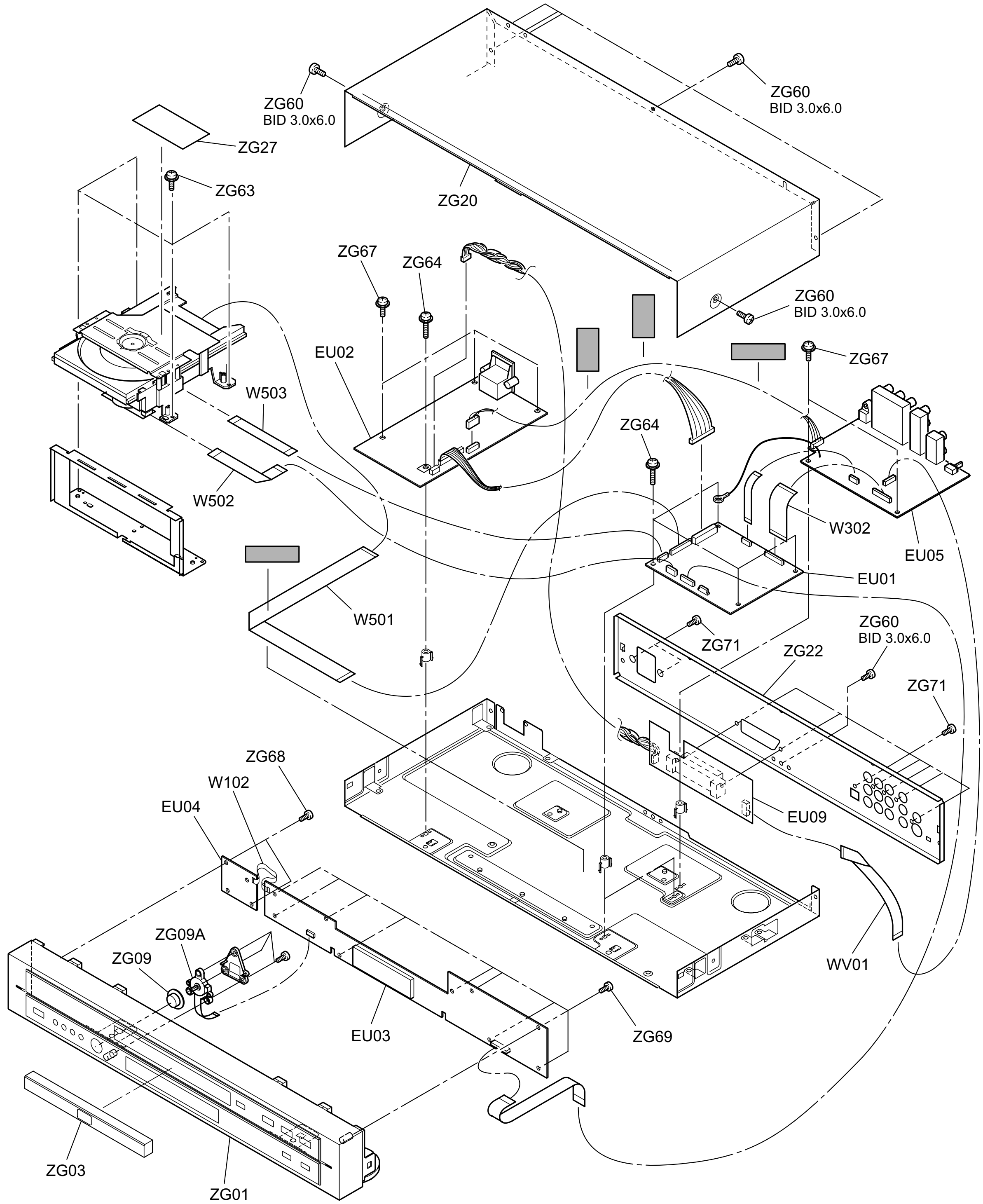

ZG60
BID 3.0x6.0
ZG60
BID 3.0x6.0
ZG27
ZG63
ZG20
ZG67
ZG64
ZG60
BID 3.0x6.0
EU02
ZG67
W503
ZG64
W502
W302
EU05
EU01
W501
ZG60
BID 3.0x6.0
ZG71
ZG22
ZG71
ZG68
W102
EU04
EU09
ZG09A
ZG09
WV01
EU03
ZG69
ZG03
ZG01

Fig. 4-4-4

4-5. Mechanism Assembly (Type B)

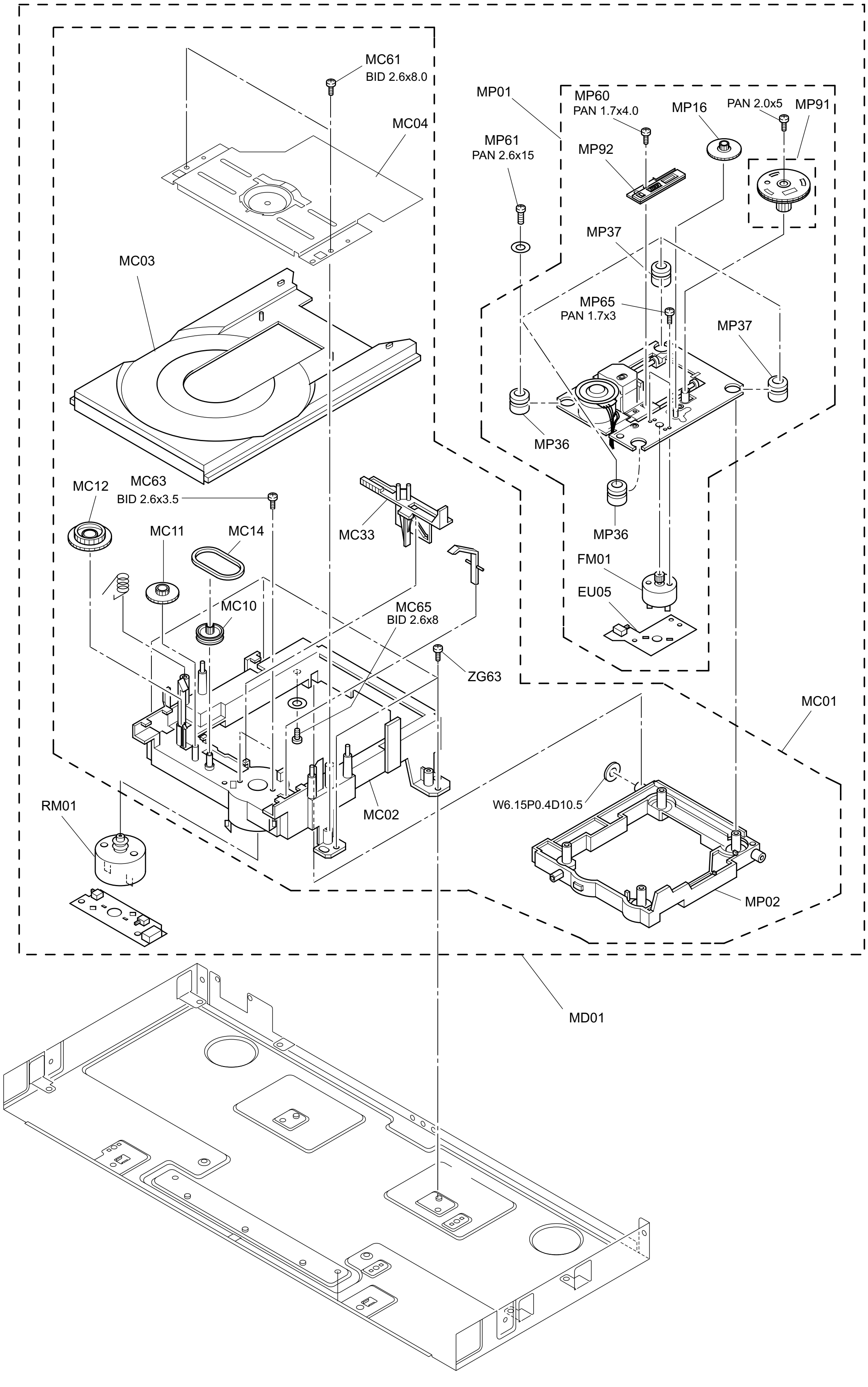

MC61
BID 2.6x8.0
MC04
MC03
MP01
MP60
PAN 1.7x4.0
MP16
PAN 2.0x5
MP91
MP61
PAN 2.6x15
MP92
MP37
MP65
PAN 1.7x3
MP37
MP36
MP36
FM01
EU05
MC12
MC63
BID 2.6x3.5
MC11
MC14
MC33
MC10
MC65
BID 2.6x8
ZG63
MC01
W6.15P0.4D10.5
RM01
MC02
MP02
MD01

Fig. 4-4-5

5. PARTS LIST

	LOCATION NUMBER	PART NUMBER	DESCRIPTION	
			- MECHANICAL PARTS -	
!	MD01	79070499	DVD Mechanism	Single/CD-R
	W302	79080184	Cable,Flexible	FFC,19P,L70
	W501	79080273	Cable,Flexible	FFC,23P,L297
	W502	79080192	Cable,Flexible	FFC,6P,L110
	W503	79080299	Cable,Flexible	FFC,8P,L115
	W603	79080300	Cable,Flexible	FFC,13P,L115
	W901	79080301	Cable,Flexible	FFC,15P,L70
	WV01	P000355540	Cable,Flexible	FFC,14P,L180
	ZF01	79078087	Remote Control Unit,	SE-R0071,SD-520EKE
	ZF01	P000355560	Remote Control Unit,	SE-R0081,ESE/ESB
!	ZF10	79077232	Owners Manual	English
!	ZF11	79077233	Owners Manual	German/French,ESE/EKE
!	ZF12	79077218	Manual,Viewer	English
!	ZF13	79077236	Manual,Viewer	Germam/French,ESE/EKE
!	ZF23	79088009	Power Cord	SD-520ESB
!	ZF23	79088010	Power Cord	SD-520ESE/EKE
	ZG01	P000355520	Front Panel(Black)	SD-520EKE
	ZG01	P000355530	Front Panel(Silver)	SD-520ESE/ESB
	ZG03	79071267	Panel,Tray(Silver)	SD-520ESE/ESB
	ZG03	79071269	Panel,Tray(Black)	SD-520EKE
	ZG09	79071276	Key,Cursor(Black)	SD-520EKE
	ZG09	79071275	Key,Cursor(Silver)	SD-520ESE/ESB
	ZG09A	79089157	Switch,Tact	RDSY0010
	ZG20	79073098	Cover,Top(Black)	SD-520ESKE
	ZG20	P000355550	Cover,Top(Silver)	SD-520ESE/ESB
!	ZG27	79070469	Label,Caution	

	LOCATION NUMBER	PART NUMBER	DESCRIPTION		
			- ELECTRICAL PARTS -		
	EU01	P000355490	PC Board Assy	Main	
			- INTEGRATED CIRCUITS -		
	IC301	79040007	IC	TC7S08F	
	IC302	79040007	IC	TC7S08F	
	IC303	79040007	IC	TC7S08F	
	IC304	79040248	IC	S-80145CLMC-J16	
	IC305	79040356	IC	W986432DH	
	IC306	79040398	IC	ZR36750	
	IC307	79040357	IC	S-24C02AFJA-TB	
	IC308	79040357	IC	S-24C02AFJA-TB	
	IC309	79040284	IC	MBM29DL324BD	
	IC310	79040399	IC	MM1561JFBE	
	IC312	79040354	IC	TC74VHCT244AFTE	
	IC313	79040354	IC	TC74VHCT244AFTE	
	IC401	79040282	IC	TC94A03F	
	IC402	79040323	IC	M11B11664A-30T	
	IC502	79040296	IC	TA1323F	
	IC503	79040324	IC	BA5813FM-E2	
	IC504	79040014	IC	TA75S01F	
	IC901	79040249	IC	TC7SH08FU	
	IC902	79040365	IC	AD1958YRS	
	IC903	79040396	IC	PCM1742KE2K	
	IC904	79040396	IC	PCM1742KE2K	
	IC905	79040397	IC	MM1575ANRE	
			- TRANSISTORS -		
	Q301	79050018	Transistor,Chip	2SA1162	
	Q302	79050018	Transistor,Chip	2SA1162	
	Q303	79050018	Transistor,Chip	2SA1162	
	Q304	79050018	Transistor,Chip	2SA1162	
	Q305	79050018	Transistor,Chip	2SA1162	
	Q306	79050018	Transistor,Chip	2SA1162	
	Q307	79050043	Transistor,Chip	RN1402	
	Q308	79050001	Transistor,Chip	RN2402	
	Q309	79050043	Transistor,Chip	RN1402	
	Q310	79050079	Transistor,Chip	2SA1213-Y	
	Q311	79050016	Transistor,Chip	2SC2712	
	Q401	79050085	Transistor,Chip	2SC3326-B	
	Q501	79050015	Transistor,Chip	HN1B01F	
	Q502	79050015	Transistor,Chip	HN1B01F	
	Q503	79050079	Transistor,Chip	2SA1213-Y	
	Q504	79050043	Transistor,Chip	RN1402	
	Q505	79050014	Transistor,Chip	HN1C03F	
	Q506	79050085	Transistor,Chip	2SC3326-B	
			- DIODES -		
	D501	79060022	Diode,Chip	1SS368	
	D502	79060022	Diode,Chip	1SS368	
	D901	79060102	Diode	1SS184	
	D902	79060102	Diode	1SS184	
	D903	79060102	Diode	1SS184	
			- MISCELLANEOUS -		
	X901	79089003	Oscillator	SMD49,27MHz	
!	EU02	P000355500	PC Board Assy	Power	
			- TRANSISTORS -		
	Q801	79050098	Transistor	FS5KM-18A	
!	Q802	79040327	IC	TA1319AP	
!	Q803	79050044	Photo Coupler	TLP621	
!	Q804	79050044	Photo Coupler	TLP621	
	Q821	79040146	IC	TA76431S	
	Q822	79050076	Transistor	2SA1585STP-Q	
	Q823	79050099	Transistor	2SA1020-Y	
	Q824	79050077	Transistor	2SC1740STP-Q	
	Q825	79050040	Transistor	2SA1048-Y	
	Q826	79050077	Transistor	2SC1740STP-Q	
	Q827	79040288	IC	PQ05RD11	
	Q828	79040289	IC	PQ3RD13	
	Q830	79050008	Transistor	RN1201	
			- DIODES -		
!	D803	79060087	Diode	S1WB(A)60	
	D805	79060069	Diode	HER108G	
	D806	79060070	Diode	HT15G	
	D807	79060080	Diode	AK06	
	D808	79060029	Diode,Zener	6.8V	
	D810	79060103	Diode	1ZB220Y	
	D821	79060017	Diode	RU4Z	
	D822	79060017	Diode	RU4Z	
	D824	79060070	Diode	HT15G	
	D825	79060093	Diode	HER153G	
	D826	79060089	Diode	HT16G	
	D827	79060070	Diode	HT15G	
	D828	79060070	Diode	HT15G	
	D829	79060072	Diode	1N4005S	
	D830	79060080	Diode	AK06	
	D831	79060080	Diode	AK06	
	D832	79060034	Diode,Zener	MTZJT-77-10B	
	D833	79060034	Diode,Zener	MTZJT-77-10B	
	D834	79060005	Diode,Zener	UZ11BSB	
	D835	79060007	Diode,Zener	UZ3.0BSB	
	D836	79060072	Diode	1N4005S	
	D841	79060072	Diode	1N4005S	
	D842	79060072	Diode	1N4005S	
			- CAPACITORS -		
!	C801	79020196	Cap,Film	0.22MF	M 275V
!	C802	79020198	Cap,Film	10000pF	M 275V
!	C803	79020028	Cap,Ceramic	470pF	Z 250V
!	C804	79020028	Cap,Ceramic	470pF	Z 250V
!	C811	79020193	Cap,Ceramic	220pF	K 250V
			- RESISTORS -		
!	R801	79030055	Res,Oxide Metal	1Mohm	J 1/2W
			- MISCELLANEOUS -		
!	F801	79087012	Fuse	1.6A,250V	
!	F821	79087013	Fuse	3.00A,125V	
!	F822	79087009	Fuse	3.50A,125V	
!	F823	79087009	Fuse	3.50A,125V	
!	P802	79089029	Jack	AC Inlet	
!	RF821	79030015	Res,Fusible	2.2ohm	J 1/4W
!	RF822	79030125	Res,Fusible	3.9ohm	J 1/4W
!	RF823	79030015	Res,Fusible	2.2ohm	J 1/4W
!	RF824	79030015	Res,Fusible	2.2ohm	J 1/4W
!	T801	79080006	Line Filter	253YOR7	
!	T802	79010026	Power Transformer	SRW3020ED5-210	
	EU03	--------	PC Board Assy	Front	
			- INTEGRATED CIRCUITS -		
	IC101	79040394	IC	TMP86CK74AFG-3PV7	
			- TRANSISTORS -		
	Q101	79050086	Transistor,Chip	RN2202	
			- DIODES -		
	D101	79060094	Diode,LED	SLR-343MC	
	D103	79060015	Diode	1SS133	
			- MISCELLANEOUS -		
	A101	79089167	Display,FL	8-BT-230GNK	
	BZ101	79089156	Buzzer	PKM13EPY	
	MT101	79089146	Module,RMT	GP1U261XK	
	S103	79089020	Switch	Push	
	S104	79089020	Switch	Push	
	S105	79089020	Switch	Push	
	S106	79089020	Switch	Push	
	S107	79089020	Switch	Push	
	S108	79089020	Switch	Push	
	S110	79089020	Switch	Push	
	S111	79089020	Switch	Push	
	S112	79089020	Switch	Push	
	S117	79089020	Switch	Push	
	S120	79089020	Switch	Push	
	X101	79089095	Oscillator,Ceramic	8MHz	
	EU04	--------	PC Board Assy	Power Switch	
			- TRANSISTORS -		
	Q181	79050086	Transistor,Chip	RN2202	
	Q182	79050086	Transistor,Chip	RN2202	
			- DIODES -		
	D181	79060033	Diode,LED		
			- MISCELLANEOUS -		
	S181	79089020	Switch	Push	
	EU05	--------	PC Board Assy	Output	
			- INTEGRATED CIRCUITS -		
	ICX01	79040401	IC	MM1568AJBE	
	ICY01	79040044	IC	NJM4580E	
	ICY02	79040074	IC	TC74HCU04AF	
	ICY04	79089159	IC	TOTX179	
	ICY05	79040044	IC	NJM4580E	
	ICY06	79040044	IC	NJM4580E	
			- TRANSISTORS -		
	QX01	79050043	Transistor,Chip	RN1402	
	QX02	79050043	Transistor,Chip	RN1402	
	QX03	79050043	Transistor,Chip	RN1402	
	QX04	79050043	Transistor,Chip	RN1402	
	QY01	79050001	Transistor,Chip	RN2402	

LOCATION NUMBER	PART NUMBER	DESCRIPTION	
QY02	79050014	Transistor,Chip	HN1C03F
QY03	79050043	Transistor,Chip	RN1402
QY04	79050001	Transistor,Chip	RN2402
QY05	79050001	Transistor,Chip	RN2402
QY06	79050001	Transistor,Chip	RN2402
QY07	79050043	Transistor,Chip	RN1402
QY08	79050014	Transistor,Chip	HN1C03F
QY09	79050001	Transistor,Chip	RN2402
QY10	79050043	Transistor,Chip	RN1402
QY11	79050014	Transistor,Chip	HN1C03F
QY12	79050001	Transistor,Chip	RN2402
QY13	79050012	Transistor,Chip	RN4601
QY14	79050012	Transistor,Chip	RN4601
		- DIODES -	
DX06	79060028	Diode,Chip	1SS226
DX07	79060028	Diode,Chip	1SS226
DY01	79060022	Diode,Chip	1SS368
		- MISCELLANEOUS -	
JX01	79089160	Jack,Video	YKC22-0535
JX02	79089176	Plate,Jack	Video
JY01	79089175	Plate,Jack	Audio
SX01	79089158	Switch,Slide	SSAA110200
EU09	--------	PC Board Assy	Output RGB
		- INTEGRATED CIRCUITS -	
ICV01	79040363	IC	MM1567AJBE
ICV02	79040029	IC	TC74HC4053AF
		- TRANSISTORS -	
QV01	79050018	Transistor,Chip	2SA1162
QV02	79050031	Transistor,Chip	DTA114EKA
QV03	79050078	Transistor,Chip	DTC114EKA-T
QV04	79050018	Transistor,Chip	2SA1162
QV05	79050031	Transistor,Chip	DTA114EKA
QV06	79050078	Transistor,Chip	DTC114EKA-T
QV07	79050016	Transistor,Chip	2SC2712
QV08	79050016	Transistor,Chip	2SC2712
QV09	79050016	Transistor,Chip	2SC2712
		- DIODES -	
DV07	79060022	Diode,Chip	1SS368
DV08	79060022	Diode,Chip	1SS368
		- MISCELLANEOUS -	
JV01	79089145	Jack,Scart	

LOCATION NUMBER	PART NUMBER	DESCRIPTION

TOSHIBA CORPORATION
1–1, SHIBAURA 1–CHOME, MINATO – KU, TOKYO 105 – 8001, JAPAN

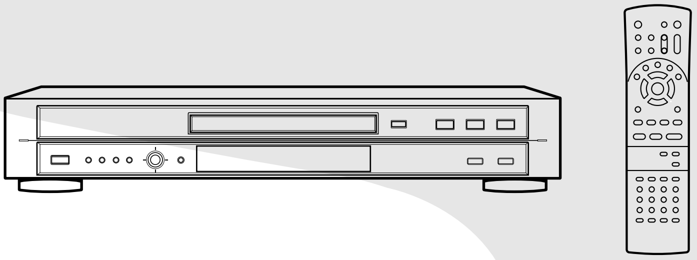
TOSHIBA

FILE NO. 810-200208

SERVICE MANUAL

DVD VIDEO/AUDIO PLAYER

SD-520ESE
SD-520EKE
SD-520ESB



Sep., 2002 Ⓢ

4. BLOCK DIAGRAMS

4-1. Overall Block Diagram

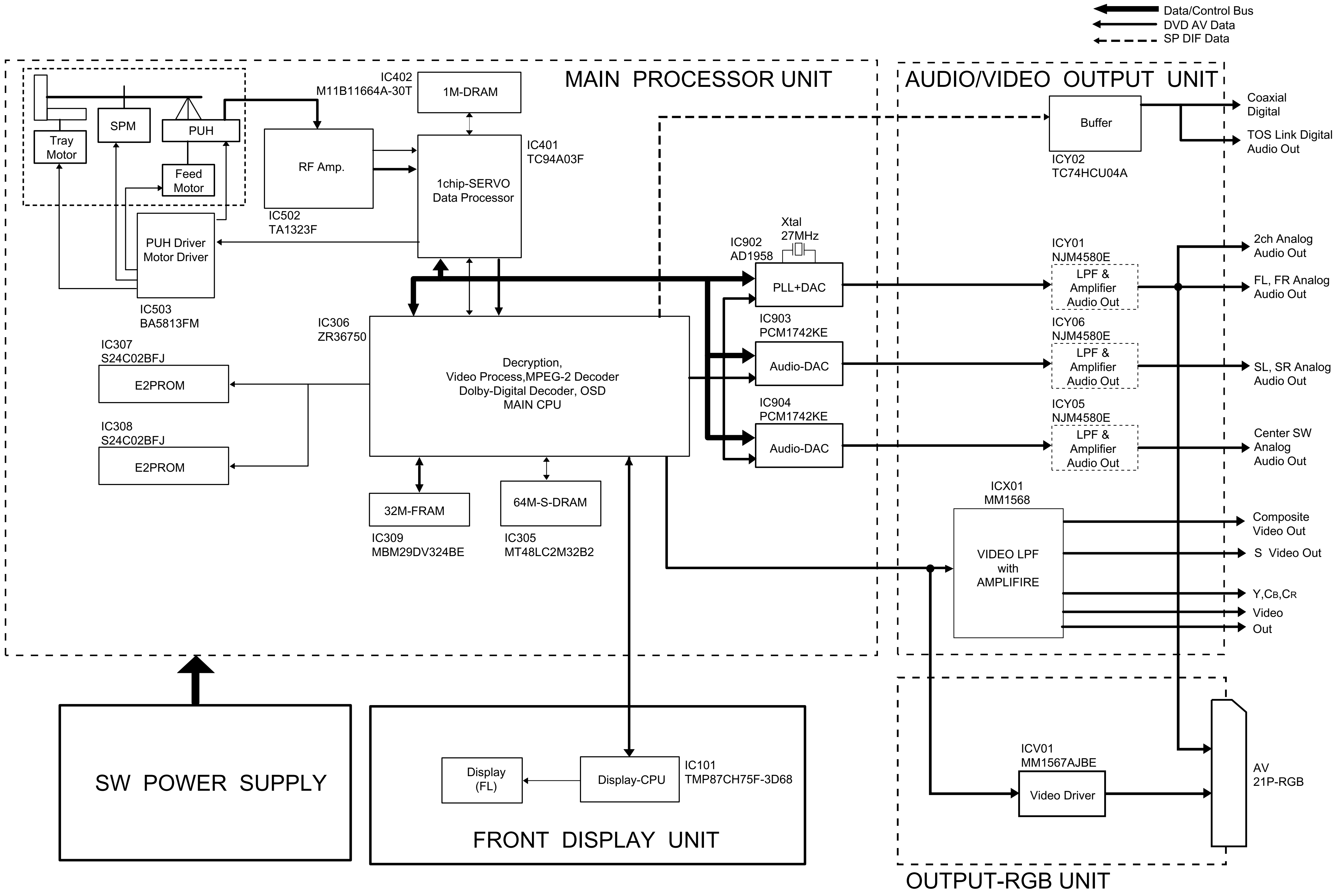

Data/Control Bus
DVD AV Data
SP DIF Data
MAIN PROCESSOR UNIT
AUDIO/VIDEO OUTPUT UNIT
Tray Motor
SPM
PUH
Feed Motor
PUH Driver Motor Driver
IC503
BA5813FM
RF Amp.
IC502
TA1323F
IC402
M11B11664A-30T
1M-DRAM
1chip-SERVO Data Processor
IC401
TC94A03F
IC306
ZR36750
Decryption, Video Process,MPEG-2 Decoder Dolby-Digital Decoder, OSD MAIN CPU
IC307
S24C02BFJ
E2PROM
IC308
S24C02BFJ
E2PROM
32M-FRAM
IC309
MBM29DV324BE
64M-S-DRAM
IC305
MT48LC2M32B2
IC902
AD1958
Xtal
27MHz
PLL+DAC
IC903
PCM1742KE
Audio-DAC
IC904
PCM1742KE
Audio-DAC
Buffer
ICY02
TC74HCU04A
Coaxial Digital
TOS Link Digital Audio Out
ICY01
NJM4580E
LPF & Amplifier Audio Out
ICY06
NJM4580E
LPF & Amplifier Audio Out
ICY05
NJM4580E
LPF & Amplifier Audio Out
2ch Analog Audio Out
FL, FR Analog Audio Out
SL, SR Analog Audio Out
Center SW Analog Audio Out
ICX01
MM1568
VIDEO LPF with AMPLIFIRE
Composite Video Out
S Video Out
Y,CB,CR Video Out
SW POWER SUPPLY
Display (FL)
Display-CPU
IC101
TMP87CH75F-3D68
FRONT DISPLAY UNIT
ICV01
MM1567AJBE
Video Driver
AV 21P-RGB
OUTPUT-RGB UNIT

Fig.3-4-1

4-2. Power Supply Block Diagram

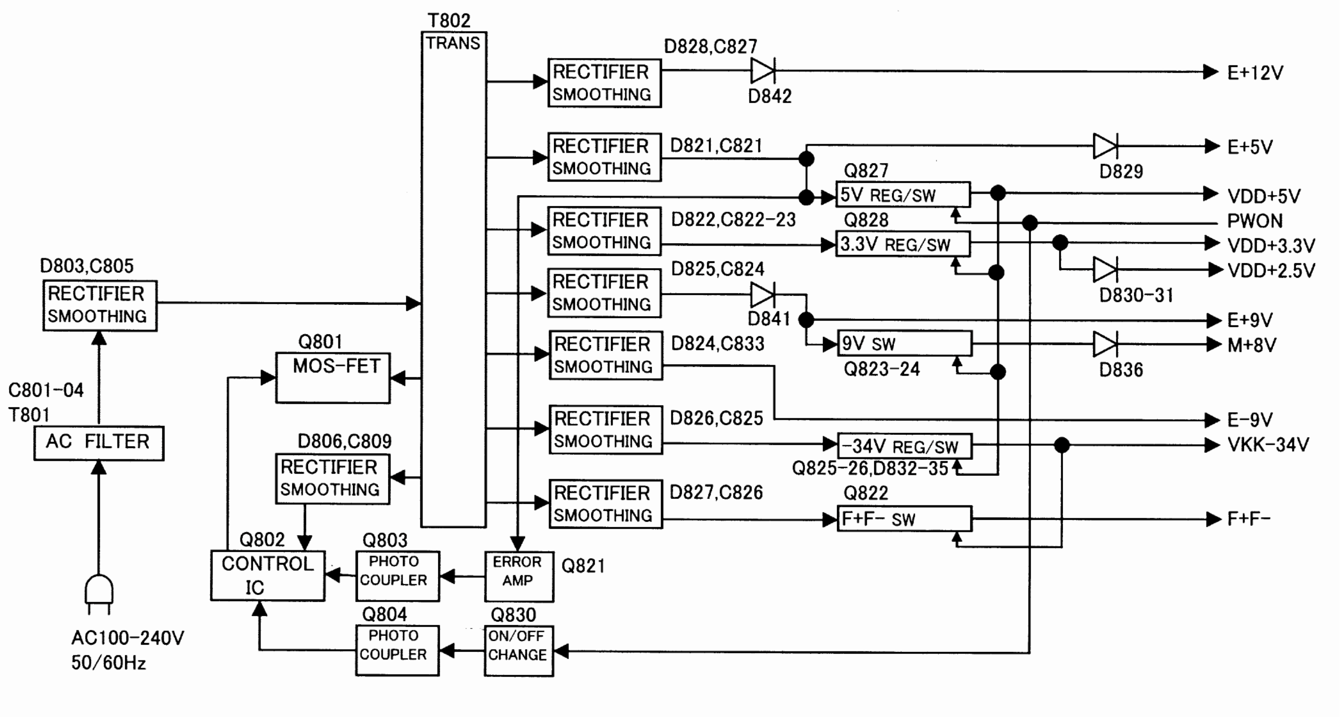

T802
TRANS
RECTIFIER
SMOOTHING
D828,C827
D842
E+12V
RECTIFIER
SMOOTHING
D821,C821
D829
E+5V
Q827
5V REG/SW
VDD+5V
PWON
RECTIFIER
SMOOTHING
D822,C822-23
Q828
3.3V REG/SW
VDD+3.3V
D830-31
VDD+2.5V
D803,C805
RECTIFIER
SMOOTHING
RECTIFIER
SMOOTHING
D825,C824
D841
E+9V
RECTIFIER
SMOOTHING
D824,C833
9V SW
Q823-24
D836
M+8V
Q801
MOS-FET
C801-04
T801
AC FILTER
RECTIFIER
SMOOTHING
D826,C825
E-9V
-34V REG/SW
Q825-26,D832-35
VKK-34V
D806,C809
RECTIFIER
SMOOTHING
RECTIFIER
SMOOTHING
D827,C826
Q822
F+F- SW
F+F-
Q802
CONTROL
IC
Q803
PHOTO
COUPLER
ERROR
AMP
Q821
Q804
PHOTO
COUPLER
Q830
ON/OFF
CHANGE
AC100-240V
50/60Hz

Fig. 3-4-2

4-3. Front Display, Power Switch Block Diagram

4-3-1. Front Display

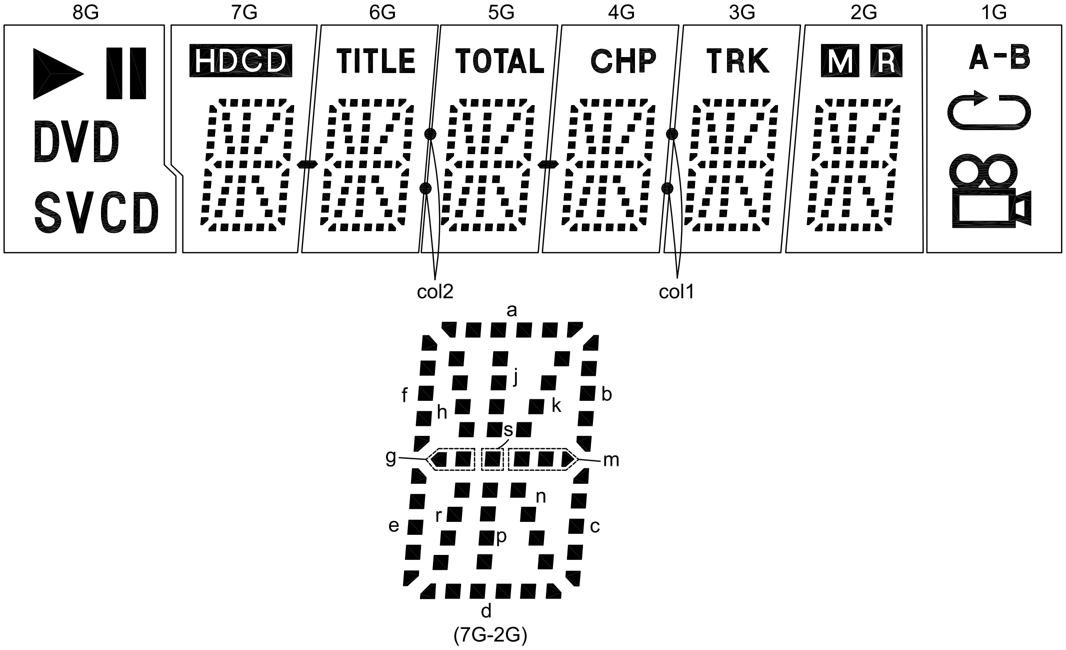

8G
7G
6G
5G
4G
3G
2G
1G
HDCD
TITLE
TOTAL
CHP
TRK
M
R
A-B
DVD
SVCD
col2
col1
a
j
f
h
k
b
s
g
m
n
r
e
c
p
d
(7G-2G)

Fig. 3-4-3

4-3-2. Front Display Pattern

	8G	7G	6G	5G	4G	3G	2G	1G
P1	▶	a	a	a	a	a	a	A
P2	⏸	f	f	f	f	f	f	-B
P3	DVD	h	h	h	h	h	h	🔁
P4	S	j	j	j	j	j	j	🎥
P5	V	k	k	k	k	k	k	–
P6	CD	b	b	b	b	b	b	–
P7	–	g	g	g	g	g	g	–
P8	–	s	s	s	s	s	s	–
P9	–	m	m	m	m	m	m	–
P10	–	e	e	e	e	e	e	–
P11	–	r	r	r	r	r	r	–
P12	–	p	p	p	p	p	p	–
P13	–	n	n	n	n	n	n	–
P14	–	c	c	c	c	c	c	–
P15	–	d	d	d	d	d	d	–
P16	–	–	col2		col1		M	–
P17	–	▬		▬		–	R	–
P18	–	HDCD	TITLE	TOTAL	CHP	TRK	–	–

Fig. 3-4-4

4-3-3. Front Display, Power Switch Block Diagram

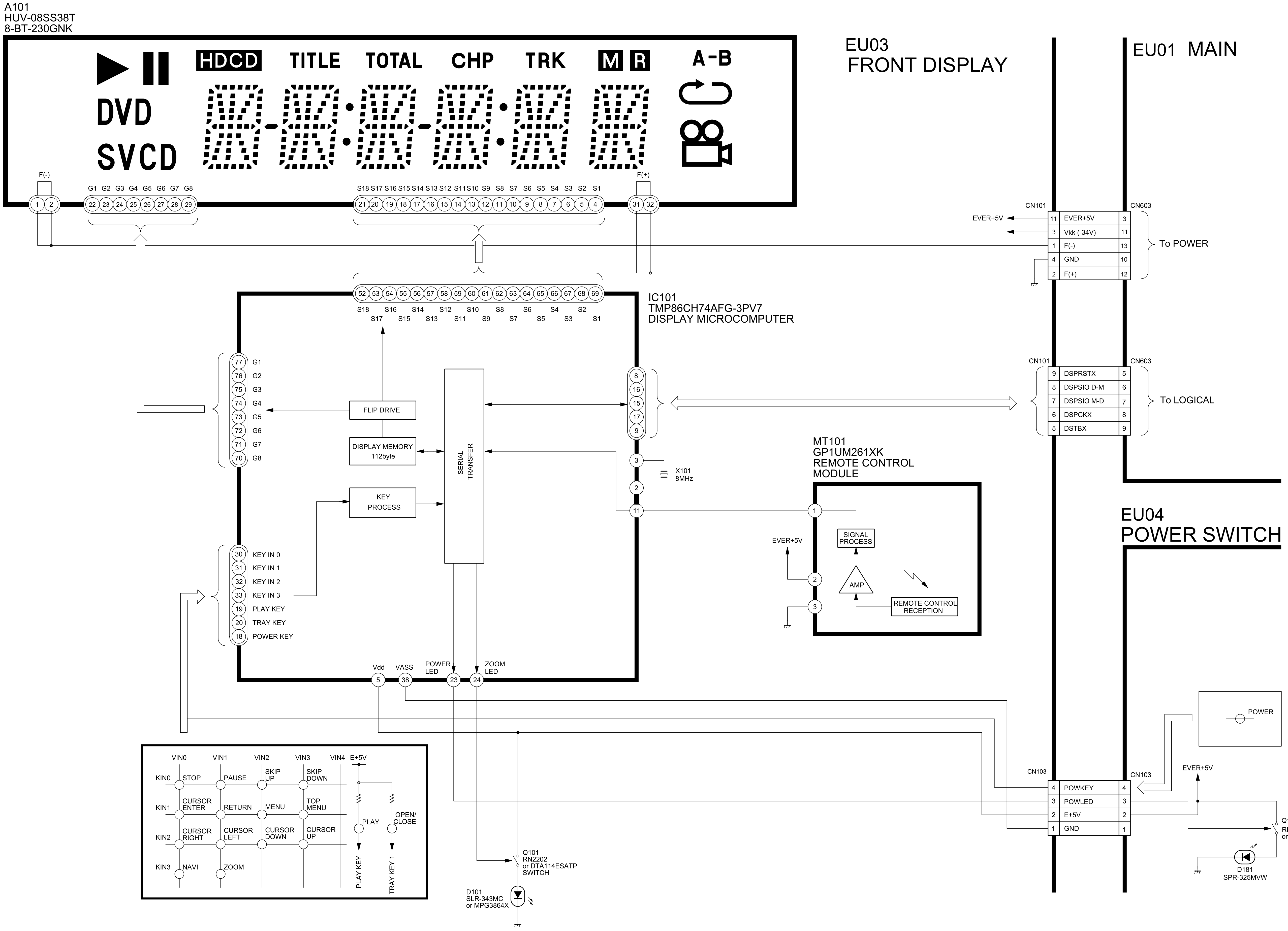

A101
HUV-08SS38T
8-BT-230GNK
HDCD
TITLE
TOTAL
CHP
TRK
M
R
A-B
DVD
SVCD
F(-)
F(+)
G1 G2 G3 G4 G5 G6 G7 G8
S18 S17 S16 S15 S14 S13 S12 S11 S10 S9 S8 S7 S6 S5 S4 S3 S2 S1
1 2
22 23 24 25 26 27 28 29
21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4
31 32
EU03
FRONT DISPLAY
EU01 MAIN
CN101
CN603
EVER+5V
11 EVER+5V 3
3 Vkk (-34V) 11
1 F(-) 13
4 GND 10
2 F(+) 12
To POWER
52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69
S18 S16 S14 S12 S10 S8 S6 S4 S2
S17 S15 S13 S11 S9 S7 S5 S3 S1
IC101
TMP86CH74AFG-3PV7
DISPLAY MICROCOMPUTER
77 G1
76 G2
75 G3
74 G4
73 G5
72 G6
71 G7
70 G8
FLIP DRIVE
DISPLAY MEMORY
112byte
KEY
PROCESS
SERIAL
TRANSFER
8
16
15
17
9
3
2
11
X101
8MHz
9 DSPRSTX 5
8 DSPSIO D-M 6
7 DSPSIO M-D 7
6 DSPCKX 8
5 DSTBX 9
To LOGICAL
MT101
GP1UM261XK
REMOTE CONTROL
MODULE
1
2
3
EVER+5V
SIGNAL
PROCESS
AMP
REMOTE CONTROL
RECEPTION
EU04
POWER SWITCH
30 KEY IN 0
31 KEY IN 1
32 KEY IN 2
33 KEY IN 3
19 PLAY KEY
20 TRAY KEY
18 POWER KEY
Vdd
VASS
POWER
LED
ZOOM
LED
5
38
23
24
POWER
VIN0
VIN1
VIN2
VIN3
VIN4
E+5V
KIN0
KIN1
KIN2
KIN3
STOP
PAUSE
SKIP
UP
SKIP
DOWN
CURSOR
ENTER
RETURN
MENU
TOP
MENU
CURSOR
RIGHT
CURSOR
LEFT
CURSOR
DOWN
CURSOR
UP
NAVI
ZOOM
PLAY
OPEN/
CLOSE
PLAY KEY
TRAY KEY 1
Q101
RN2202
or DTA114ESATP
SWITCH
D101
SLR-343MC
or MPG3864X
CN103
CN103
EVER+5V
4 POWKEY 4
3 POWLED 3
2 E+5V 2
1 GND 1
Q181, Q182
RN2202
or DTA114ESATP
D181
SPR-325MVW

Fig. 3-4-5

4-4. Main Block Diagrams

4-4-1. Servo System Block Diagram

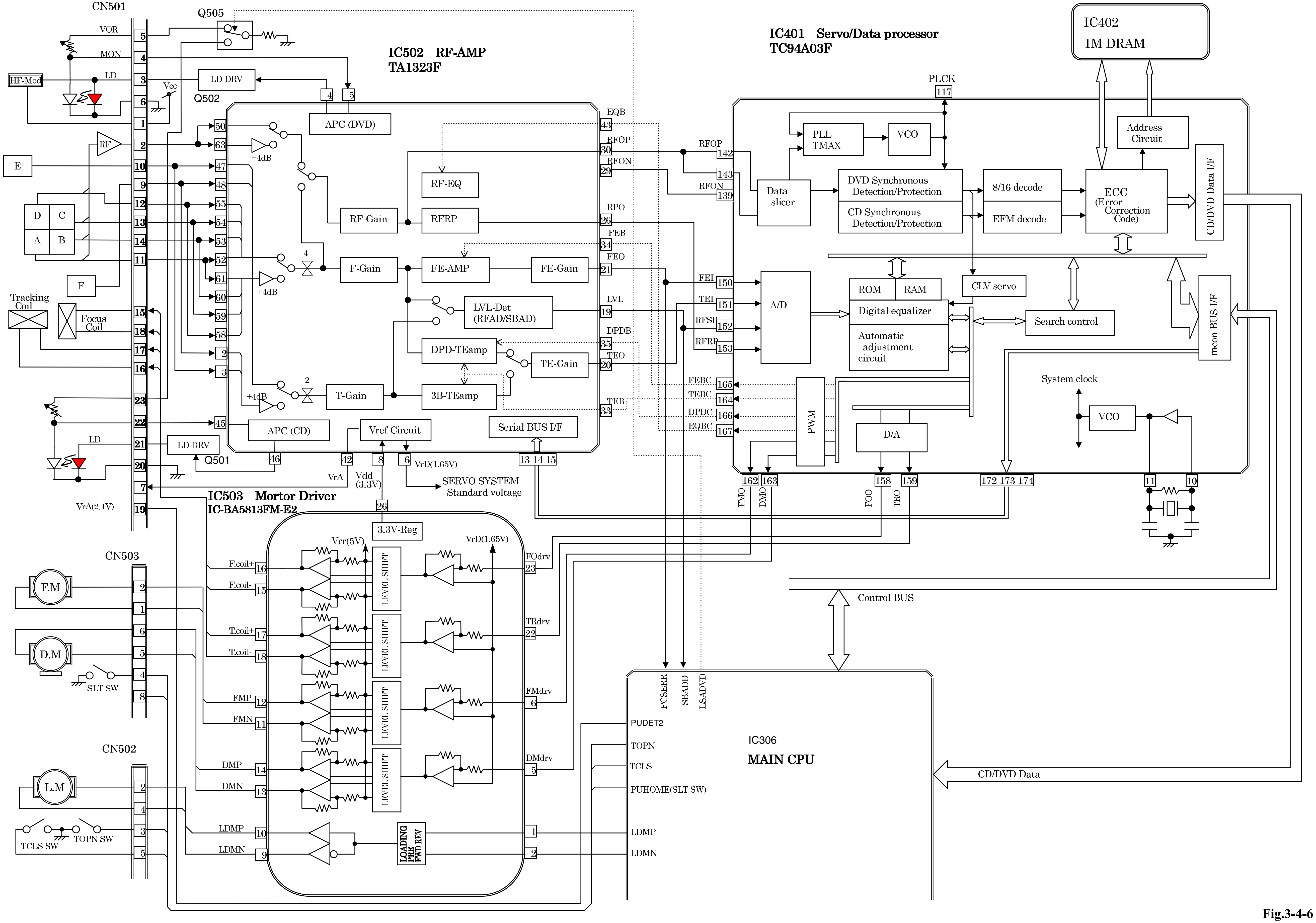

CN501
VOR
MON
LD
HF-Mod
Vcc
Q505
LD DRV
Q502
E
RF
D C A B
F
Tracking Coil
Focus Coil
LD
LD DRV
Q501
VrA(2.1V)
IC502 RF-AMP
TA1323F
APC (DVD)
+4dB
RF-Gain
RF-EQ
RFRP
F-Gain
FE-AMP
FE-Gain
LVL-Det (RFAD/SBAD)
DPD-TEamp
TE-Gain
T-Gain
3B-TEamp
APC (CD)
Vref Circuit
Serial BUS I/F
EQB
RFOP
RFON
RPO
FEB
FEO
LVL
DPDB
TEO
TEB
VrA
Vdd (3.3V)
VrD(1.65V)
SERVO SYSTEM Standard voltage
IC401 Servo/Data processor
TC94A03F
PLCK
PLL TMAX
VCO
Data slicer
DVD Synchronous Detection/Protection
CD Synchronous Detection/Protection
8/16 decode
EFM decode
ECC (Error Correction Code)
Address Circuit
CD/DVD Data I/F
IC402
1M DRAM
A/D
ROM
RAM
Digital equalizer
Automatic adjustment circuit
CLV servo
Search control
μcon BUS I/F
PWM
D/A
System clock
VCO
FEI
TEI
RFSB
RFRP
FEBC
TEBC
DPDC
EQBC
FMO
DMO
FOO
TRO
IC503 Mortor Driver
IC-BA5813FM-E2
3.3V-Reg
Vrr(5V)
VrD(1.65V)
LEVEL SHIFT
F.coil+
F.coil-
T.coil+
T.coil-
FMP
FMN
DMP
DMN
LDMP
LDMN
FOdrv
TRdrv
FMdrv
DMdrv
LOADING PRE FWD REV
CN503
F.M
D.M
SLT SW
CN502
L.M
TCLS SW
TOPN SW
Control BUS
CD/DVD Data
FCSERR
SBADD
LSADVD
PUDET2
TOPN
TCLS
PUHOME(SLT SW)
LDMP
LDMN
IC306
MAIN CPU

Fig.3-4-6

4-4-2. Logical System Block Diagram

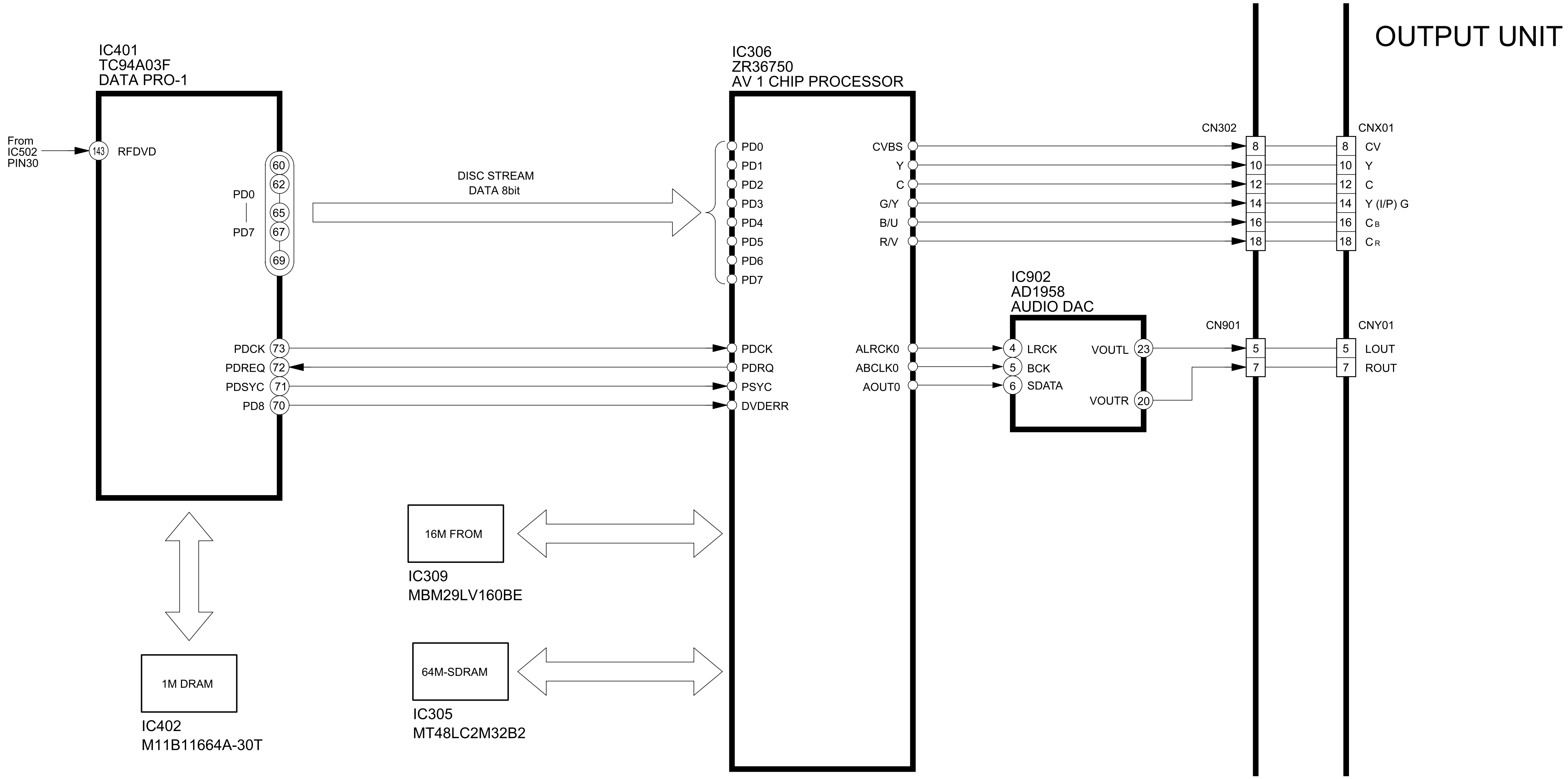

OUTPUT UNIT
IC401
TC94A03F
DATA PRO-1
From IC502 PIN30
143 RFDVD
PD0
PD7
60
62
65
67
69
DISC STREAM
DATA 8bit
PDCK 73
PDREQ 72
PDSYC 71
PD8 70
IC306
ZR36750
AV 1 CHIP PROCESSOR
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7
PDCK
PDRQ
PSYC
DVDERR
CVBS
Y
C
G/Y
B/U
R/V
ALRCK0
ABCLK0
AOUT0
CN302
CNX01
8 CV
10 Y
12 C
14 Y (I/P) G
16 CB
18 CR
IC902
AD1958
AUDIO DAC
4 LRCK
5 BCK
6 SDATA
VOUTL 23
VOUTR 20
CN901
CNY01
5 LOUT
7 ROUT
16M FROM
IC309
MBM29LV160BE
64M-SDRAM
IC305
MT48LC2M32B2
1M DRAM
IC402
M11B11664A-30T

Fig. 3-4-7

4-5. Output Block Diagrams

4-5-1. Output Block Diagram

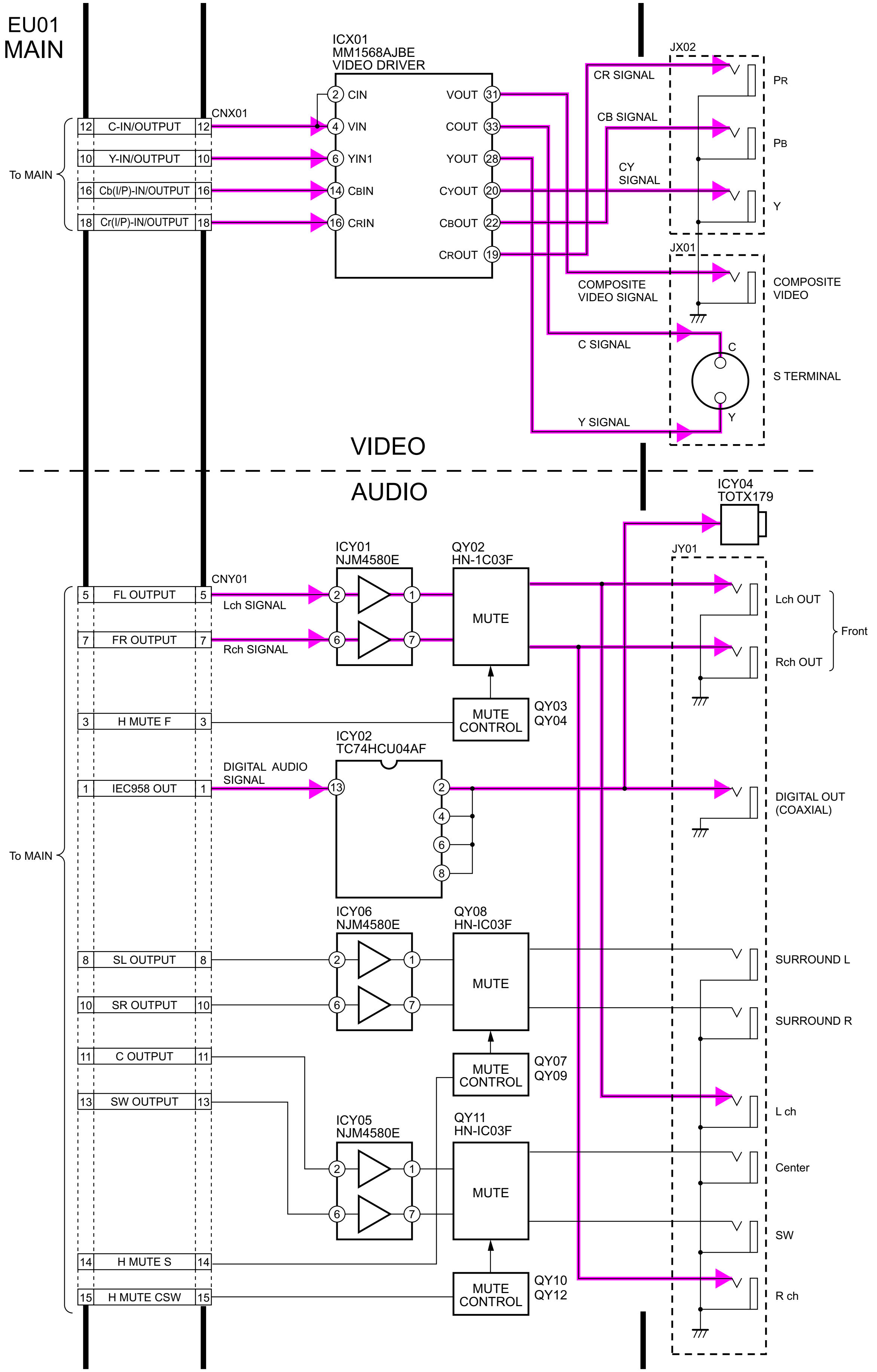
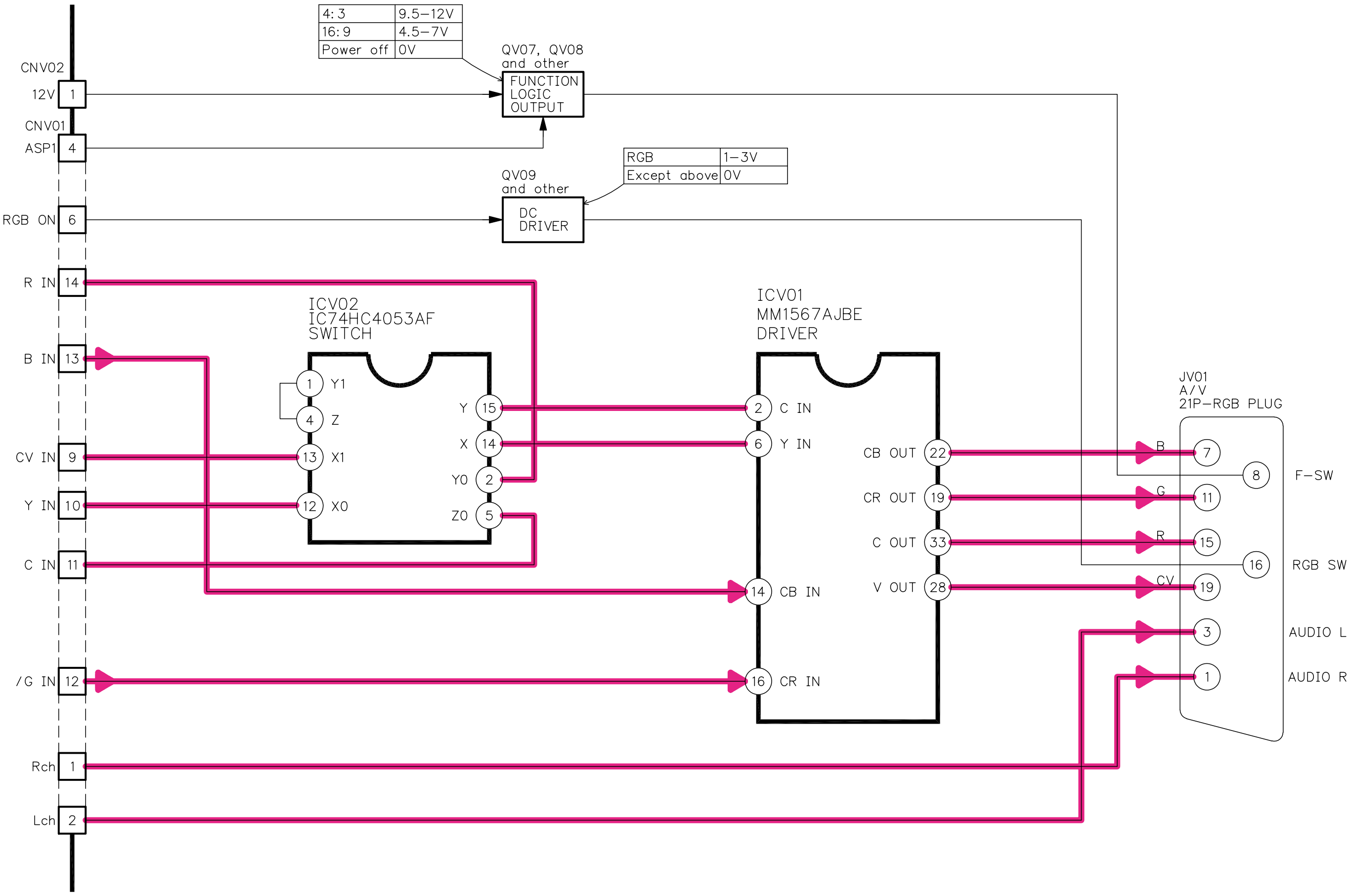

EU01
MAIN
To MAIN
12 C-IN/OUTPUT 12
10 Y-IN/OUTPUT 10
16 Cb(I/P)-IN/OUTPUT 16
18 Cr(I/P)-IN/OUTPUT 18
CNX01
ICX01
MM1568AJBE
VIDEO DRIVER
2 CIN
4 VIN
6 YIN1
14 CBIN
16 CRIN
VOUT 31
COUT 33
YOUT 28
CYOUT 20
CBOUT 22
CROUT 19
JX02
CR SIGNAL
CB SIGNAL
CY
SIGNAL
PR
PB
Y
JX01
COMPOSITE
VIDEO SIGNAL
COMPOSITE
VIDEO
C SIGNAL
C
S TERMINAL
Y SIGNAL
Y
VIDEO
AUDIO
ICY04
TOTX179
ICY01
NJM4580E
QY02
HN-1C03F
JY01
CNY01
5 FL OUTPUT 5
Lch SIGNAL
7 FR OUTPUT 7
Rch SIGNAL
MUTE
Lch OUT
Rch OUT
Front
3 H MUTE F 3
MUTE
CONTROL
QY03
QY04
ICY02
TC74HCU04AF
DIGITAL AUDIO
SIGNAL
1 IEC958 OUT 1
DIGITAL OUT
(COAXIAL)
To MAIN
ICY06
NJM4580E
QY08
HN-IC03F
8 SL OUTPUT 8
10 SR OUTPUT 10
MUTE
SURROUND L
SURROUND R
11 C OUTPUT 11
13 SW OUTPUT 13
MUTE
CONTROL
QY07
QY09
L ch
ICY05
NJM4580E
QY11
HN-IC03F
MUTE
Center
SW
14 H MUTE S 14
15 H MUTE CSW 15
MUTE
CONTROL
QY10
QY12
R ch

Fig. 3-4-8

4-5-2. Output-RGB Block Diagram



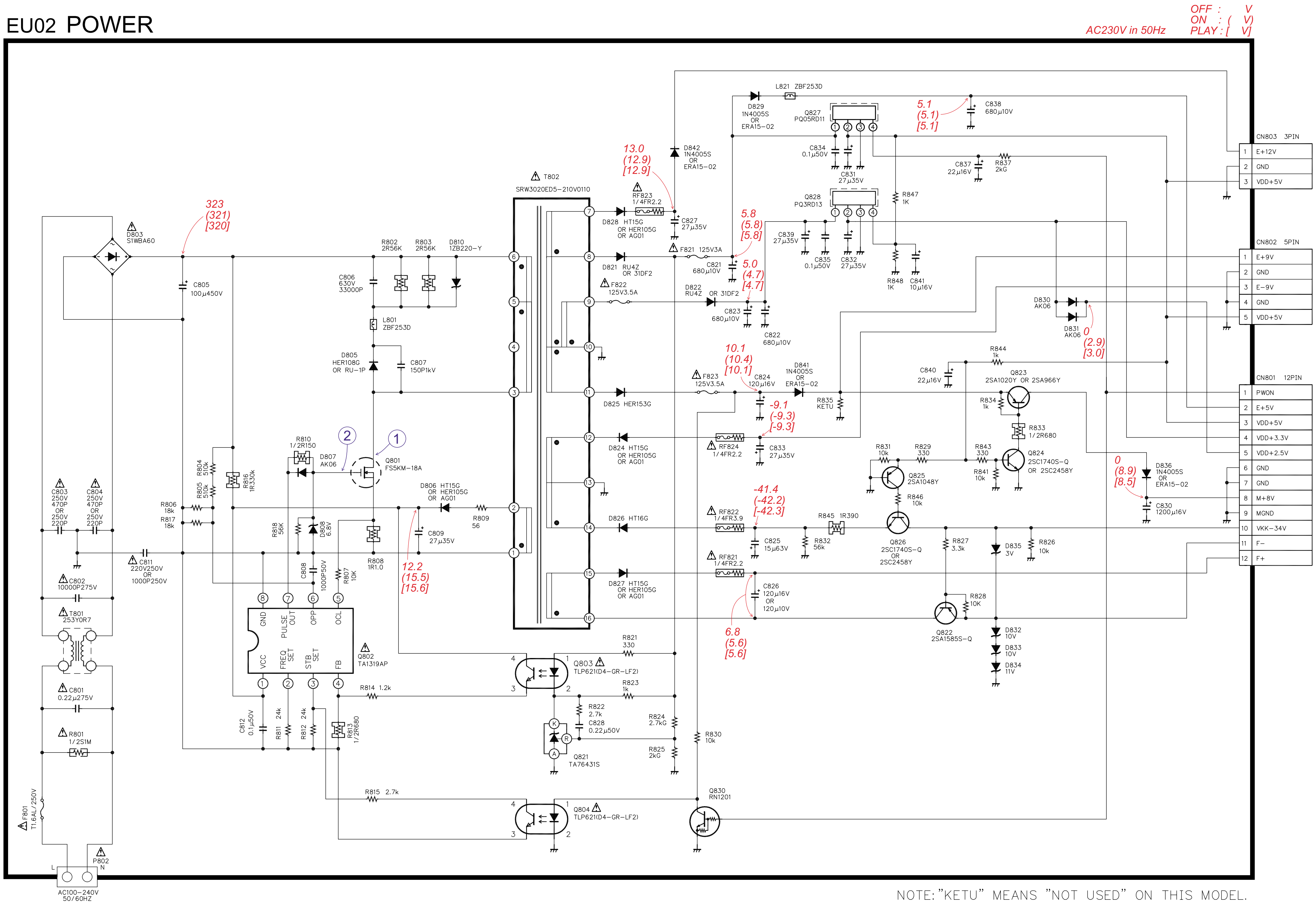
4:3 9.5–12V
16:9 4.5–7V
Power off 0V
QV07, QV08 and other
FUNCTION LOGIC OUTPUT
CNV02
12V 1
CNV01
ASP1 4
RGB 1–3V
Except above 0V
QV09 and other
DC DRIVER
RGB ON 6
R IN 14
B IN 13
CV IN 9
Y IN 10
C IN 11
/G IN 12
Rch 1
Lch 2
ICV02
IC74HC4053AF
SWITCH
1 Y1
4 Z
13 X1
12 X0
Y 15
X 14
Y0 2
Z0 5
ICV01
MM1567AJBE
DRIVER
2 C IN
6 Y IN
14 CB IN
16 CR IN
CB OUT 22
CR OUT 19
C OUT 33
V OUT 28
JV01
A/V
21P–RGB PLUG
B 7
8 F–SW
G 11
R 15
16 RGB SW
CV 19
3 AUDIO L
1 AUDIO R

Fig. 3-4-9

5. CIRCUIT DIAGRAMS

5-1. Power Supply Circuit Diagram

EU02 POWER


AC230V in 50Hz
OFF : V
ON : (V)
PLAY : [V]
D803 S1WBA60
323 (321) [320]
C805 100µ450V
C803 250V 470P OR 250V 220P
C804 250V 470P OR 250V 220P
C802 10000P275V
T801 253Y0R7
C801 0.22µ275V
R801 1/2S1M
F801 T1.6AL/250V
L P802 N
AC100−240V 50/60HZ
C811 220V250V OR 1000P250V
R806 18k
R817 18k
R804 510k
R805 510k
R816 1R330k
R802 2R56K
R803 2R56K
D810 1ZB220−Y
C806 630V 33000P
L801 ZBF253D
D805 HER108G OR RU−1P
C807 150P1kV
R810 1/2R150
D807 AK06
Q801 FS5KM−18A
D806 HT15G OR HER105G OR AG01
R809 56
C809 27µ35V
R818 56K
D808 6.8V
C808 1000P50V
R807 10K
R808 1R1.0
12.2 (15.5) [15.6]
Q802 TA1319AP
GND PULSE OUT OPP OCL VCC FREQ SET STB SET FB
C812 0.1µ50V
R811 24k
R812 24k
R813 1/2R680
R814 1.2k
R815 2.7k
T802 SRW3020ED5−210V0110
D828 HT15G OR HER105G OR AG01
RF823 1/4FR2.2
13.0 (12.9) [12.9]
C827 27µ35V
D842 1N4005S OR ERA15−02
D821 RU4Z OR 31DF2
F821 125V3A
C821 680µ10V
5.8 (5.8) [5.8]
F822 125V3.5A
D822 RU4Z OR 31DF2
5.0 (4.7) [4.7]
C823 680µ10V
C822 680µ10V
D825 HER153G
F823 125V3.5A
10.1 (10.4) [10.1]
C824 120µ16V
D841 1N4005S OR ERA15−02
R835 KETU
-9.1 (-9.3) [-9.3]
D824 HT15G OR HER105G OR AG01
RF824 1/4FR2.2
C833 27µ35V
D826 HT16G
RF822 1/4FR3.9
-41.4 (-42.2) [-42.3]
C825 15µ63V
R832 56k
R845 1R390
D827 HT15G OR HER105G OR AG01
RF821 1/4FR2.2
C826 120µ16V OR 120µ10V
6.8 (5.6) [5.6]
D829 1N4005S OR ERA15−02
L821 ZBF253D
Q827 PQ05RD11
5.1 (5.1) [5.1]
C838 680µ10V
C834 0.1µ50V
C831 27µ35V
C837 22µ16V
R837 2kG
Q828 PQ3RD13
R847 1K
C839 27µ35V
C835 0.1µ50V
C832 27µ35V
R848 1K
C841 10µ16V
D830 AK06
D831 AK06
0 (2.9) [3.0]
R844 1k
C840 22µ16V
Q823 2SA1020Y OR 2SA966Y
R834 1k
R833 1/2R680
R831 10k
R829 330
Q825 2SA1048Y
R843 330
R841 10k
Q824 2SC1740S−Q OR 2SC2458Y
R846 10k
Q826 2SC1740S−Q OR 2SC2458Y
R827 3.3k
D835 3V
R826 10k
R828 10K
Q822 2SA1585S−Q
D832 10V
D833 10V
D834 11V
0 (8.9) [8.5]
D836 1N4005S OR ERA15−02
C830 1200µ16V
R821 330
Q803 TLP621(D4−GR−LF2)
R823 1k
R822 2.7k
C828 0.22µ50V
Q821 TA76431S
K R A
R824 2.7kG
R825 2kG
R830 10k
Q804 TLP621(D4−GR−LF2)
Q830 RN1201
CN803 3PIN
1 E+12V
2 GND
3 VDD+5V
CN802 5PIN
1 E+9V
2 GND
3 E−9V
4 GND
5 VDD+5V
CN801 12PIN
1 PWON
2 E+5V
3 VDD+5V
4 VDD+3.3V
5 VDD+2.5V
6 GND
7 GND
8 M+8V
9 MGND
10 VKK−34V
11 F−
12 F+

NOTE:"KETU" MEANS "NOT USED" ON THIS MODEL.

	Q802						Q821			Q822			Q823			Q824			Q825		
	①	②	③	④	⑥	⑧	K	R	A	E	C	B	E	C	B	E	C	B	E	C	B
OFF	12.2	1.5	0.4	2.8	2.7	0	4.0	2.5	0	0	-7.3	0	9.4	0	9.4	0	9.4	0	0	-40.2	0
ON	15.5	1.2	1.7	2.4	2.7	0	4.1	2.5	0	-30.2	-30.3	-30.9	9.6	9.6	8.9	0	0	0.7	0.6	-13.0	0
PLAY	15.6	1.3	1.7	2.3	2.7	0	4.1	2.5	0	-30.2	-30.3	-30.9	9.3	9.3	8.6	0	0	0.7	0.6	-12.9	0

	Q826			Q827				Q828				Q830		
	E	C	B	①	②	③	④	①	②	③	④	E	C	B
OFF	-41.4	0	-40.3	5.8	0	0	0	5.0	0	0	0	0	1.1	0
ON	-33.8	-33.8	-33.1	5.8	5.0	0	4.6	4.7	3.3	0	2.5	0	0	4.6
PLAY	-33.8	-33.7	-33.1	5.8	5.0	0	4.5	4.7	3.3	0	2.5	0	0	4.5

Fig. 3-5-1

Power Supply Circuit Diagram

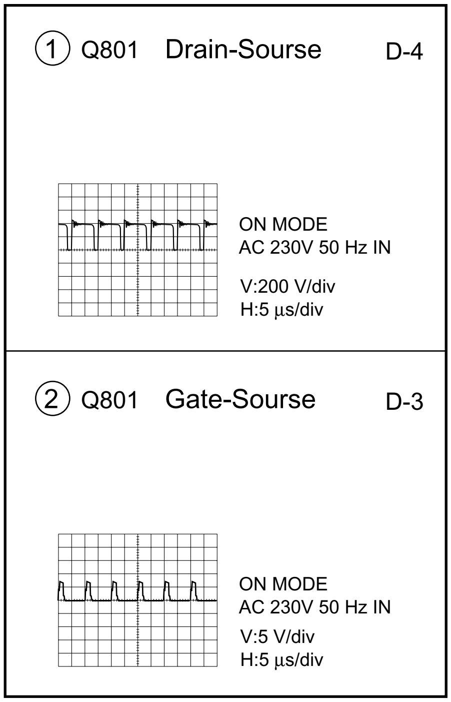
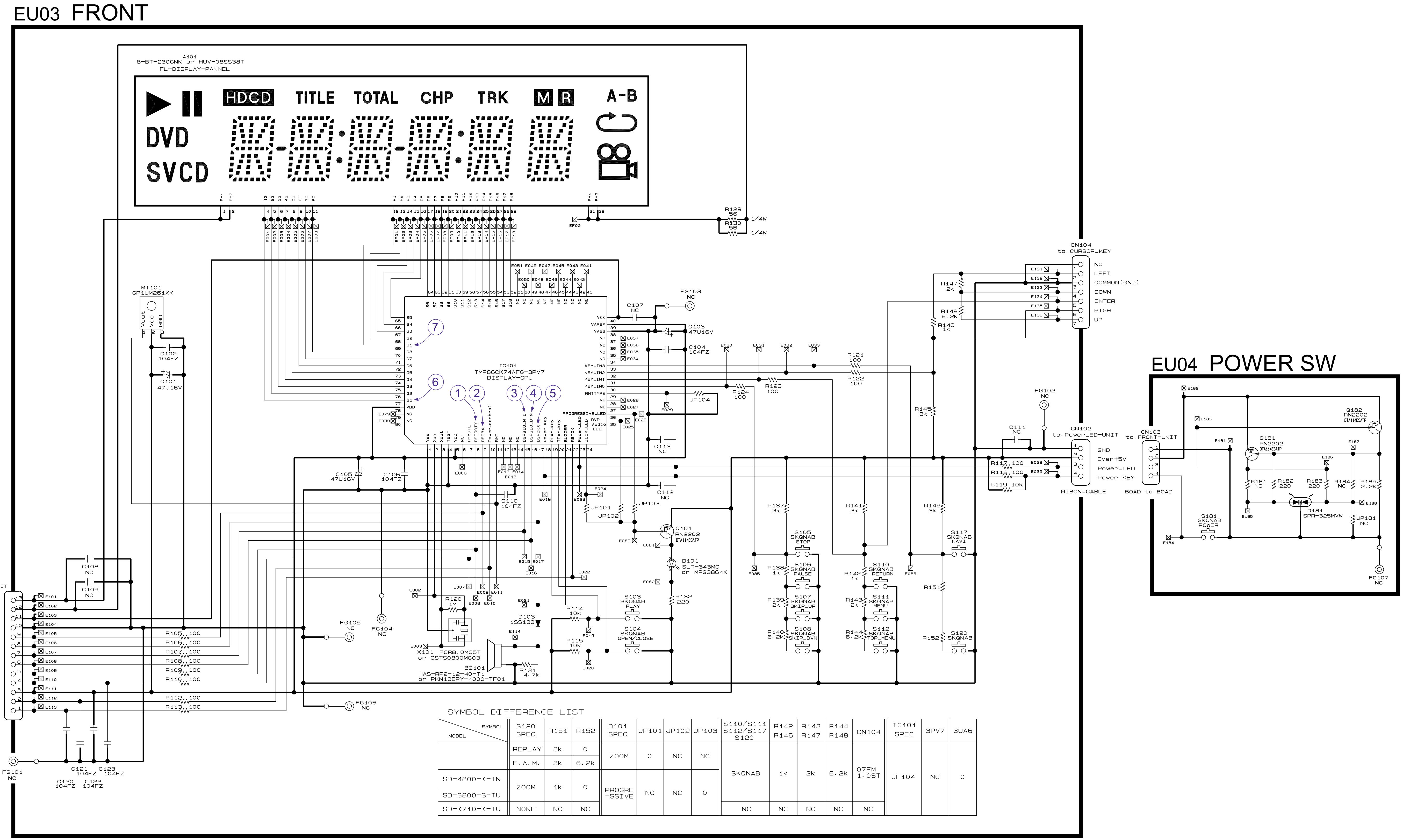


Fig. 3-5-2

5-2. Front Display, Power Switch Circuit Diagram


EU03 FRONT
A101
8-BT-230GNK or HUV-08SS38T
FL-DISPLAY-PANNEL
HDCD TITLE TOTAL CHP TRK M R A-B
DVD
SVCD
MT101
GP1UM261XK
C102 104FZ
C101 47U16V
IC101
TMP86CK74AFG-3PV7
DISPLAY-CPU
C107 NC
FG103 NC
C103 47U16V
C104 104FZ
R129 56 1/4W
R130 56 1/4W
CN104 to.CURSOR_KEY
NC
LEFT
COMMON(GND)
DOWN
ENTER
RIGHT
UP
R147 2k
R148 6.2k
R146 1k
R121 100
R122 100
R123 100
R124 100
JP104
R145 3k
FG102 NC
C111 NC
CN102 to.PowerLED-UNIT
GND
Ever+5V
Power_LED
Power_KEY
R117 100
R118 100
R119 10k
RIBON_CABLE
CN103 to.FRONT-UNIT
BOAD to BOAD
C105 47U16V
C106 104FZ
C110 104FZ
C112 NC
C113 NC
JP101
JP102
JP103
Q101 RN2202 DTA114ESATP
D101 SLR-343MC or MPG3864X
R132 220
S103 SKQNAB PLAY
S104 SKQNAB OPEN/CLOSE
R114 10k
R115 10k
D103 1SS133
R120 1M
X101 FCR8.0MC5T or CSTS0800MG03
BZ101 HAS-RP2-12-40-T1 or PKM13EPY-4000-TF01
R131 4.7k
R137 3k
S105 SKQNAB STOP
R138 1k
S106 SKQNAB PAUSE
R139 2k
S107 SKQNAB SKIP_UP
R140 6.2k
S108 SKQNAB SKIP_DWN
R141 3k
S110 SKQNAB RETURN
R142 1k
R143 2k
S111 SKQNAB MENU
R144 6.2k
S112 SKQNAB TOP_MENU
R149 3k
S117 SKQNAB NAVI
R151
R152
S120 SKQNAB
C108 NC
C109 NC
CN101 to.MAIN-UNIT
F(-) -31.0V
F(+) -25.9V
Vkk -34.0V
GND
DSTBX
DSPCKX
DSPSIO_M-D
DSPSIO_D-M
DSPRSTX
HMUTE
Ever+5V
PWRCNT
RSTOX
R105 100
R106 100
R107 100
R108 100
R109 100
R110 100
R112 100
R113 100
FG105 NC
FG104 NC
FG106 NC
FG101 NC
C120 104FZ
C121 104FZ
C122 104FZ
C123 104FZ
EU04 POWER SW
Q182 RN2202 DTA114ESATP
Q181 RN2202 DTA114ESATP
R181 NC
R182 220
R183 220
R184 NC
R185 2.2k
D181 SPR-325MVW
S181 SKQNAB POWER
JP181 NC
FG107 NC

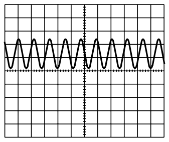
SYMBOL DIFFERENCE LIST

SYMBOL / MODEL	S120 SPEC	R151	R152	D101 SPEC	JP101	JP102	JP103	S110/S111 S112/S117 S120	R142 R146	R143 R147	R144 R148	CN104	IC101 SPEC	3PV7	3UA6
	REPLAY	3k	0	ZOOM	0	NC	NC	SKQNAB	1k	2k	6.2k	07FM 1.0ST	JP104	NC	0
	E.A.M.	3k	6.2k												
SD-4800-K-TN	ZOOM	1k	0	PROGRE -SSIVE	NC	NC	0								
SD-3800-S-TU															
SD-K710-K-TU	NONE	NC	NC					NC	NC	NC	NC	NC			

Fig. 3-5-3

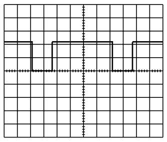
Front Display, Power Switch Circuit Diagram

① IC101, Pin ③ D-4



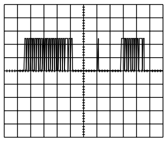
V: 2 V/div
H: 100 ns/div

② IC101, Pin ⑨ D-4



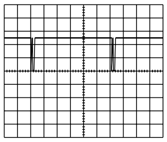
V: 2 V/div
H: 5 ms/div

③ IC101, Pin ⑮ D-4



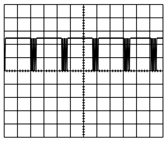
V: 2 V/div
H: 200 ms/div

④ IC101, Pin ⑯ D-5



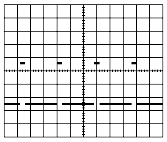
V: 2 V/div
H: 5 ms/div

⑤ IC101, Pin ⑰ D-5



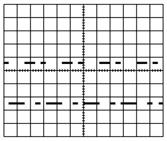
V: 2 V/div
H: 100 µs/div

⑥ IC101, Pin (77) D-4



V: 10 V/div
H: 500 µs/div

⑦ IC101, Pin (69) D-4



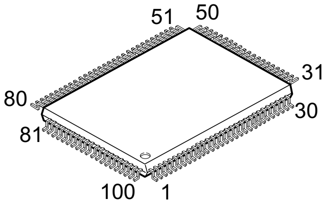
V: 10 V/div
H: 500 µs/div

Fig. 3-5-4

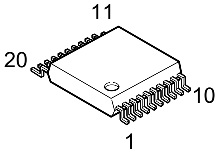
5-3. Main Circuit Diagrams

5-3-1. Main ICs Information

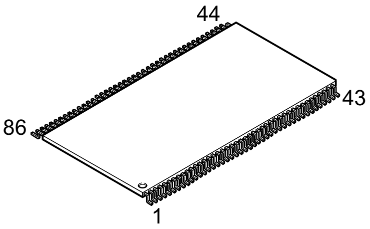
TMP87CH75F


51
50
31
80
30
81
100
1

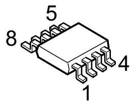
TC74VHCT
244AFT



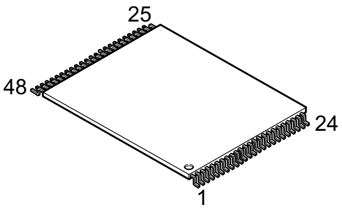
W986432DH



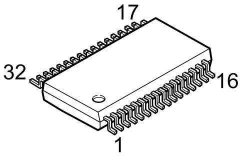
S24C02AFJA



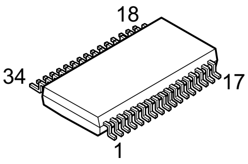
MBM29DL3240BE



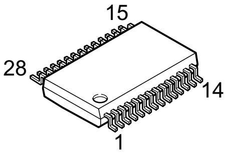
BH7863



MM1568AJ



AD1958YRS

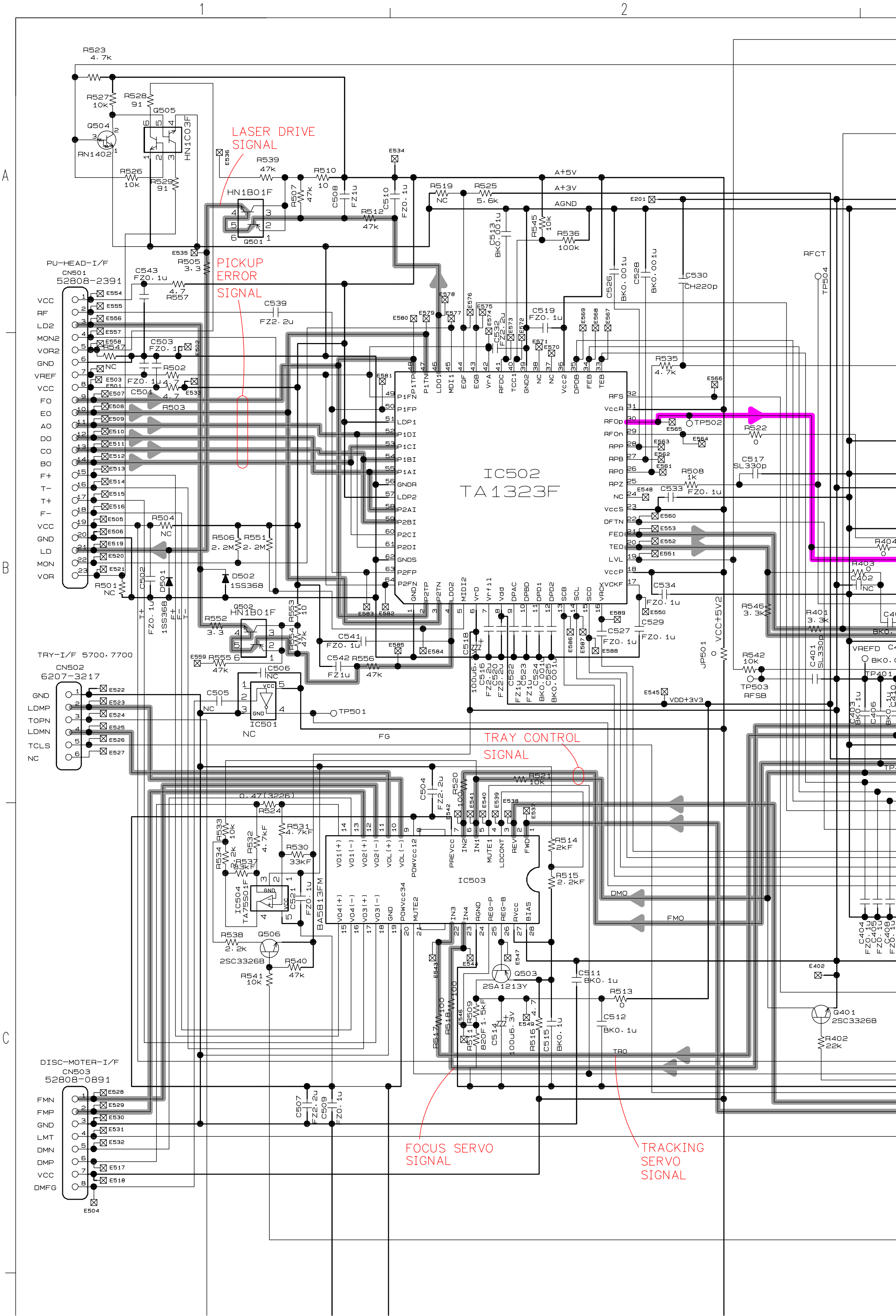


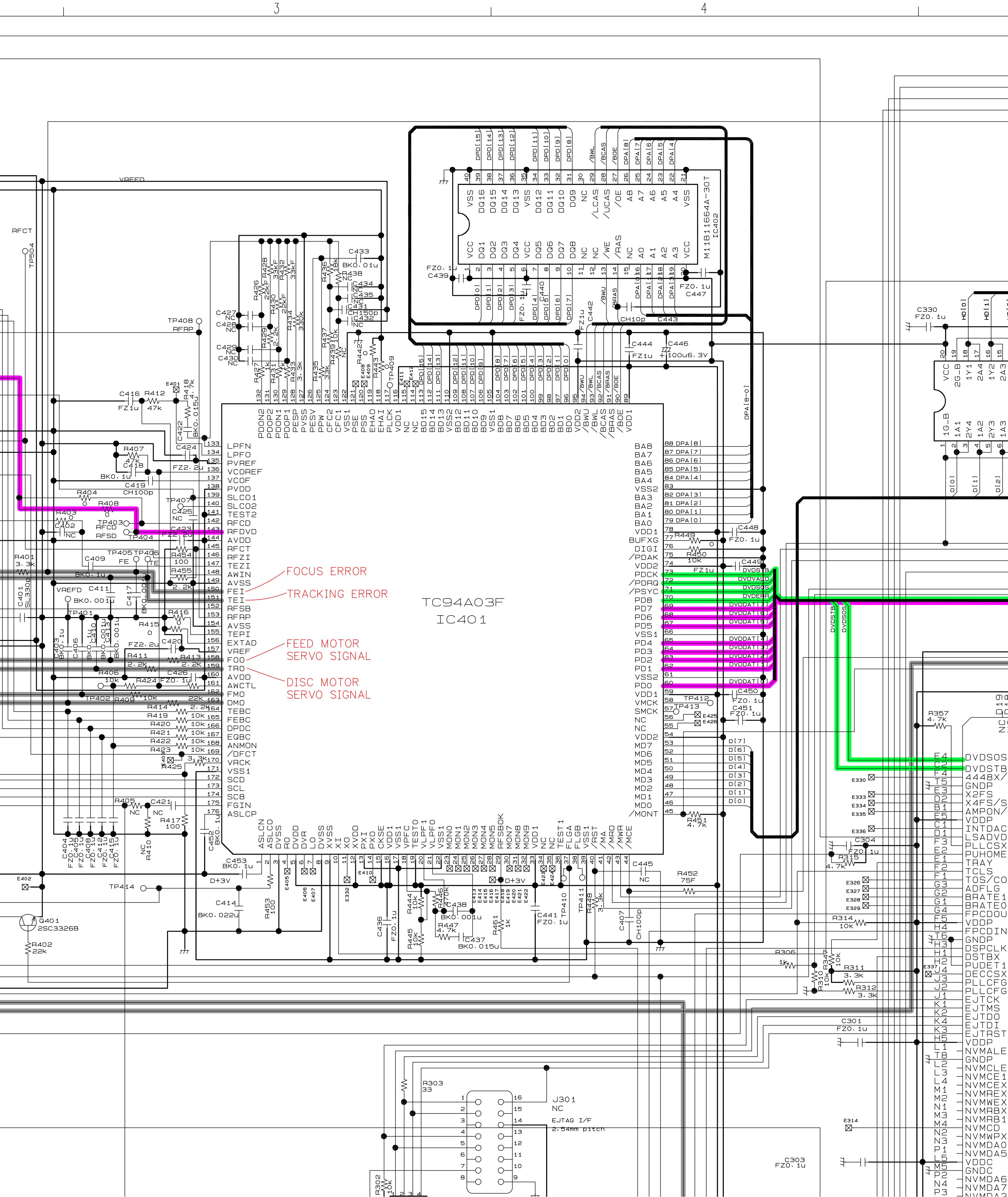
5-3-2. Main Circuit Diagram

LASER DRIVE SIGNAL
PICKUP ERROR SIGNAL
PU-HEAD-I/F
CN501
52808-2391
TRAY-I/F 5700-7700
CN502
6207-3217
DISC-MOTER-I/F
CN503
52808-0891
IC502
TA1323F
TRAY CONTROL SIGNAL
FOCUS SERVO SIGNAL
TRACKING SERVO SIGNAL
FOCUS ERROR
TRACKING ERROR
FEED MOTOR SERVO SIGNAL
DISC MOTOR SERVO SIGNAL
TC94A03F
IC401
IC312
TC74VHC244FT
IC313
TC74VHC244FT
JP301
OPEN:FLASH
CLOSE:DEBUG
IC306
ZR36750
J301
EJTAG I/F
RS232C-I/F TOP
CN601
53398-0690
CN603
52808-1391
FRONT-MPU-I/F
IC301
TC7S08F
IC302
TC7S08F
IC303
TC7S08F
IC304
S80145CLMC
IC309
IC305
IC307
S24C02AFJ-TB
IC308
S24C02AFJ-TB
IDE I/F 2.54mm pitch
AUDIO SIGNAL L
AUDIO SIGNAL R
IC903
PCM1742KE
IC904
PCM1742KE
IC905
NM1575A
AUDIO-SIGNAL I/F
CN901
52808-1591
CN302
52808-1991
VIDEO-SIGNAL I/F
POWER-SUPPLY
CN701
B12B-PH-SM3-TB

Fig. 3-5-5

5-3-2. Main Circuit Diagram


1
2
A
B
C
LASER DRIVE SIGNAL
PICKUP ERROR SIGNAL
TRAY CONTROL SIGNAL
FOCUS SERVO SIGNAL
TRACKING SERVO SIGNAL
IC502 TA1323F
IC503
BA5813FM
IC501
IC504 TA75S01F
PU-HEAD-I/F CN501 52808-2391
TRY-I/F 5700·7700 CN502 6207-3217
DISC-MOTER-I/F CN503 52808-0891
VCC
RF
LD2
MON2
VOR2
GND
VREF
VCC
FO
EO
AO
DO
CO
BO
F+
T-
T+
F-
VCC
GND
LD
MON
VOR
GND
LDMP
TOPN
LDMN
TCLS
NC
FMN
FMP
GND
LMT
DMN
DMP
VCC
DMFG
Q504 RN1402
Q505 HN1C03F
Q501 HN1B01F
Q502 HN1B01F
Q503 2SA1213Y
Q506 2SC3326B
Q401 2SC3326B
D501 1SS368
D502 1SS368
R523 4.7k
R527 10k
R528 91
R526 10k
R529 91
R539 47k
R510 10
R507 47k
R512 47k
R519 NC
R525 5.6k
R545 10k
R536 100k
R505 3.3
R557 4.7
R547
R502
R503
R504 NC
R506 2.2M
R551 2.2M
R501 NC
R552 3.3
R553 10
R554 47k
R555 47k
R556 47k
R535 4.7k
R522 0
R508 1k
R546 3.3k
R542 10k
R401 3.3k
R403
R404
R402 22k
R524 0.47(3226)
R533 10k
R531 4.7kF
R532 4.7kF
R534 8.2k
R537 33kF
R530 33kF
R538 2.2k
R540 47k
R541 10k
R520 100
R521 10k
R514 2kF
R515 2.2kF
R513 0
R517 100
R518 100
R511 820F
R509 1.5kF
R516 4.7
C543 FZ0.1u
C508 FZ1u
C510 FZ0.1u
C513 BK0.001u
C539 FZ2.2u
C503 FZ0.1u
C504
C519 FZ0.1u
C526 BK0.001u
C528 BK0.001u
C530 CH220p
C517 SL330p
C533 FZ0.1u
C534 FZ0.1u
C527 FZ0.1u
C529 FZ0.1u
C541 FZ0.1u
C542 FZ1u
C518
C516 FZ2.2u
C520 FZ2.2u
C522 FZ1u
C523 FZ1u
C524 BK0.001u
C525 BK0.001u
C502 FZ0.1u
C505 NC
C506 NC
C521 FZ0.1u
C504 FZ2.2u
C511 BK0.1u
C512 BK0.1u
C514 100u6.3v
C515 BK0.1u
C507 FZ2.2u
C509 FZ0.1u
C401 SL330p
C402 NC
A+5V
A+3V
AGND
RFCT
TP504
TP502
TP501
TP503 RFSB
TP401
JP501 0
VCC+5V2
VDD+3V3
VREFD
FG
DMO
FMO
TRO
NC
P1FN
P1FP
LDP1
P1DI
P1CI
P1BI
P1AI
GNDR
LDP2
P2AI
P2BI
P2CI
P2DI
GNDS
P2FP
P2FN
P1TP
P1TN
LDO1
MDI1
EQF
EQB
Vr-A
RFDC
TCC1
GND2
NC
NC
Vcc2
DPDB
FEB
TEB
RFS
VccR
RFOp
RFOn
RPP
RPB
RPO
RPZ
NC
VccS
DFTN
FEO
TEO
LVL
VccP
VCKF
GND
P2TP
P2TN
LDO2
MDI2
VrO
Vrf1
Vdd
DPAC
DPBD
DPD1
DPD2
SCB
SCL
SCO
VRCK
VO1(+)
VO1(-)
VO2(+)
VO2(-)
VOL(+)
VOL(-)
POWVcc12
PREVcc
IN2
IN1
MUTE1
LDCONT
REV
FWD
VO4(+)
VO4(-)
VO3(+)
VO3(-)
GND
POWVcc34
MUTE2
IN3
IN4
RGND
REG-P
REG-B
RVcc
BIAS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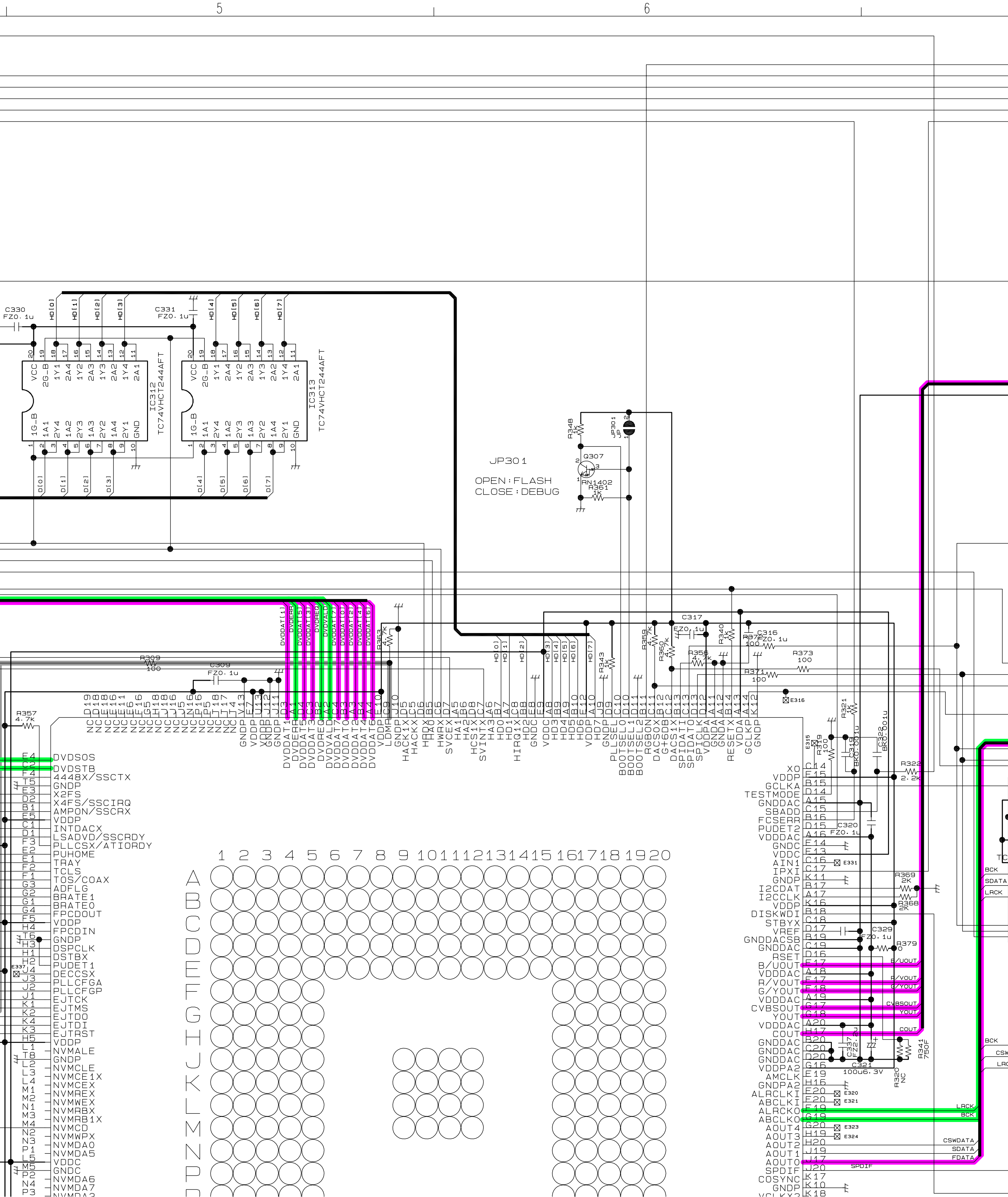
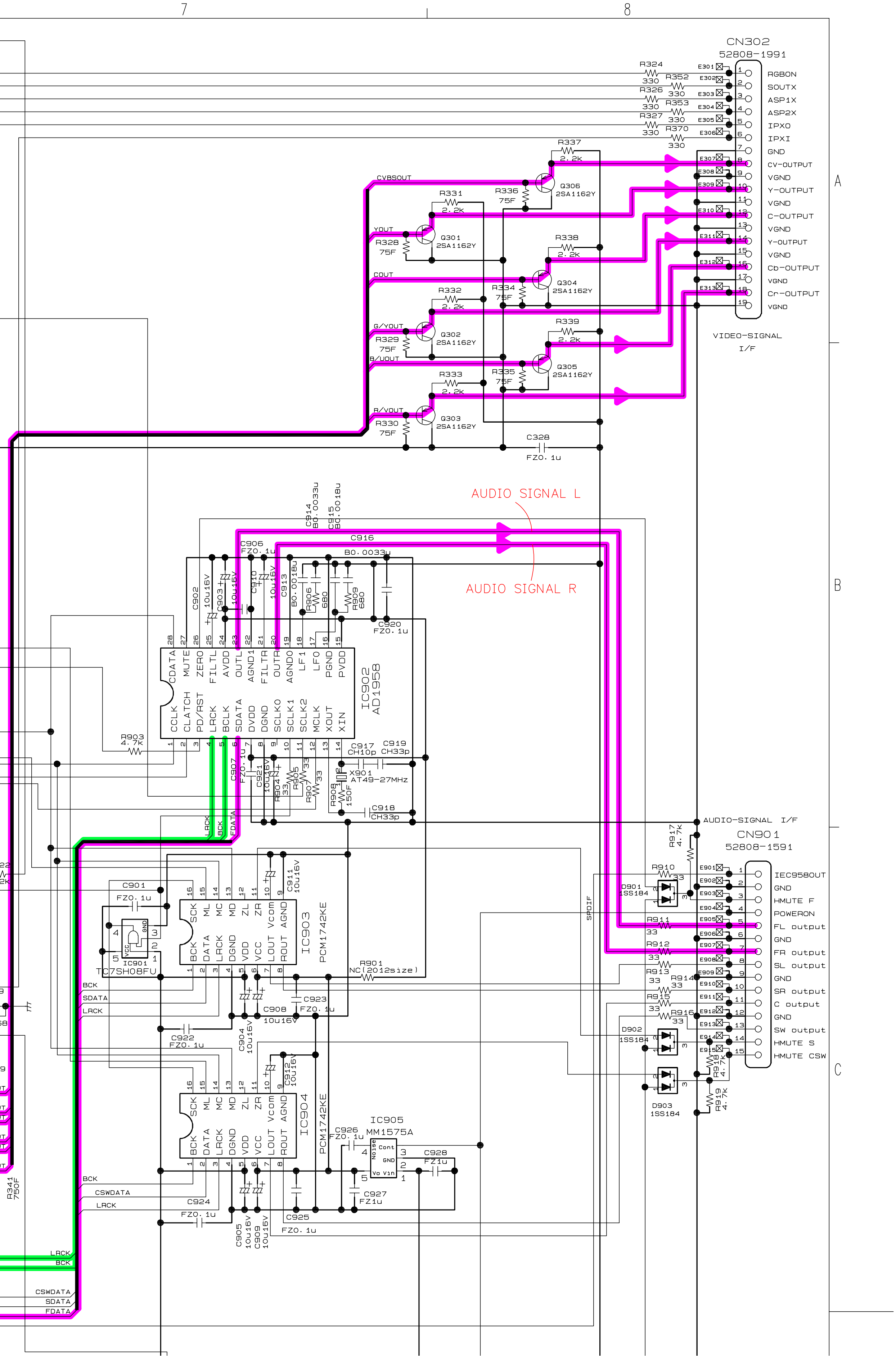
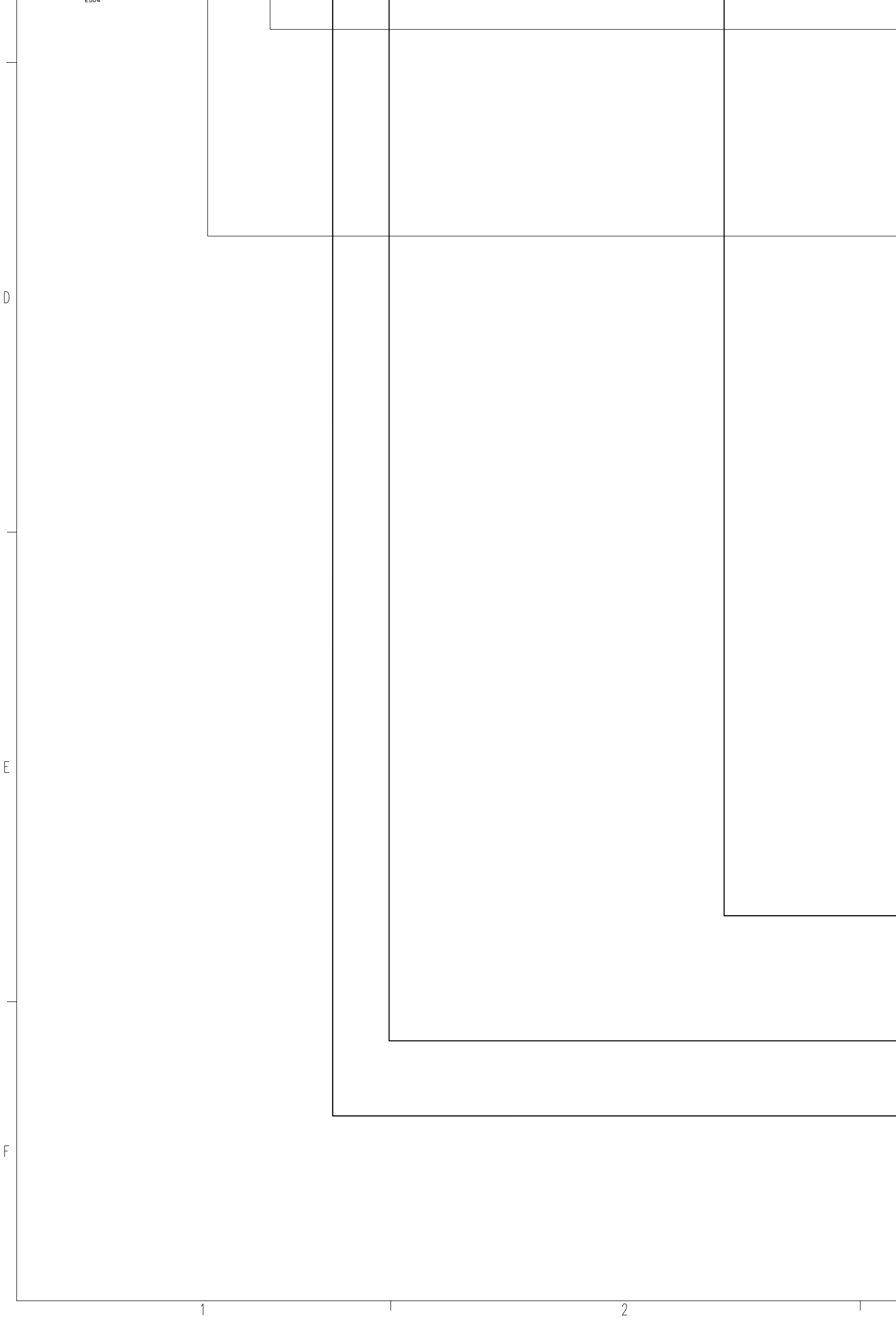
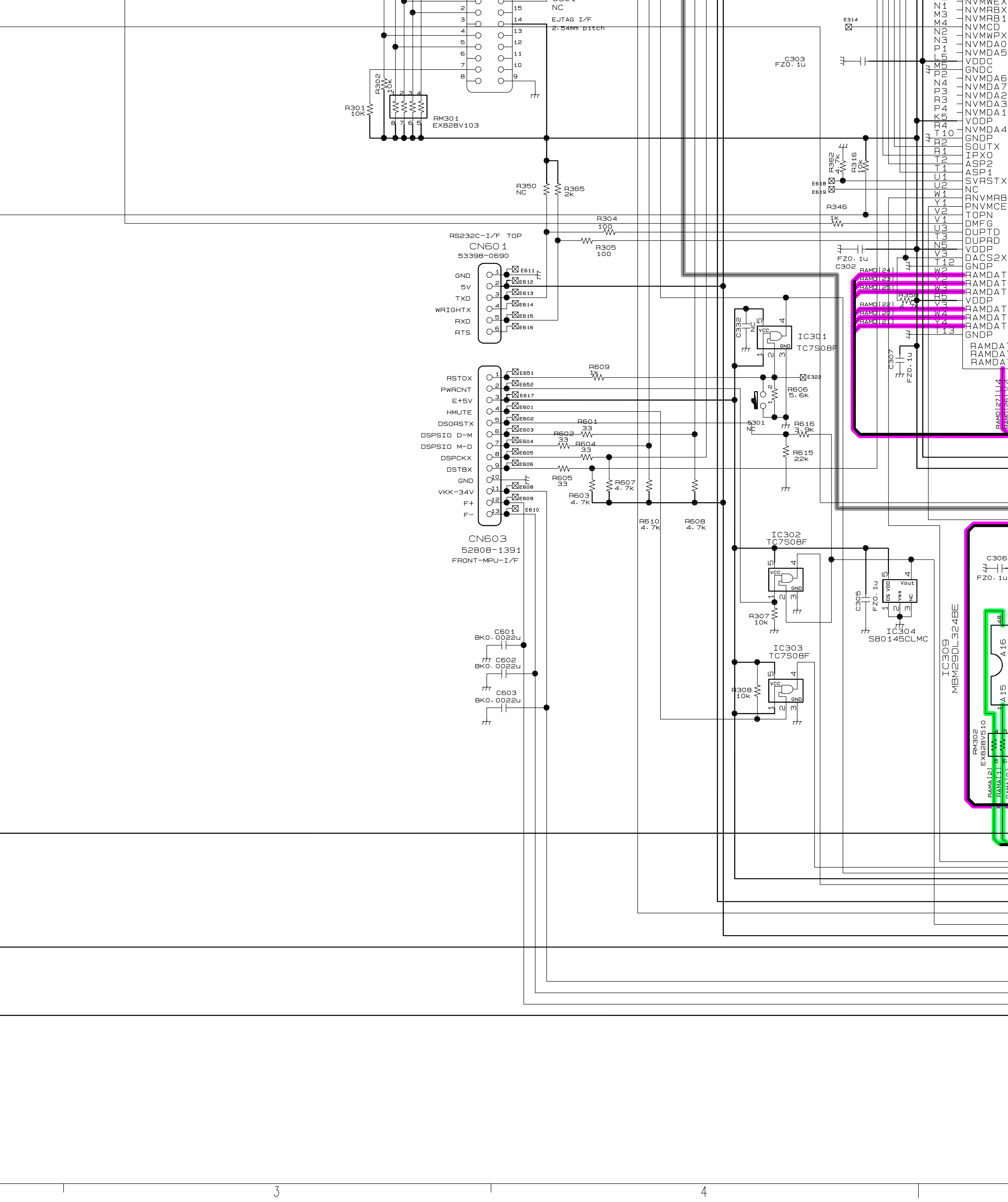
4
TC94A03F
IC401
M11B11664A-30T
IC402
FOCUS ERROR
TRACKING ERROR
FEED MOTOR
SERVO SIGNAL
DISC MOTOR
SERVO SIGNAL
VREFD
RFCT
TP504
TP408
RFRP
Q401
2SC3326B
R402
22k
J301
NC
EJTAG I/F
2.54mm pitch
R303
33
C301
FZ0.1u
C303
FZ0.1u
C330
FZ0.1u
DVDSOS
DVDSTB
DPA[8-0]

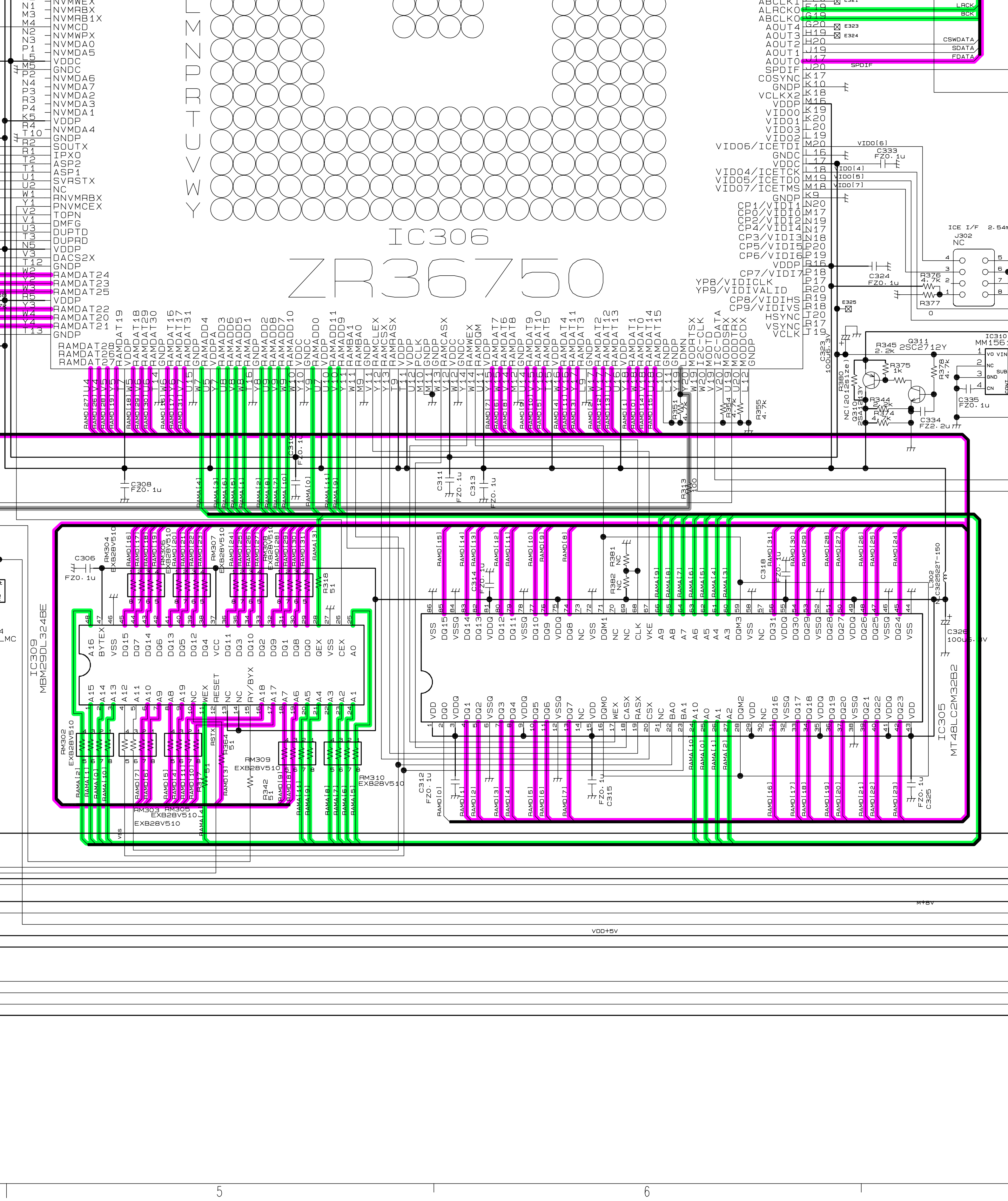

5
6
C330
FZ0. 1u
C331
FZ0. 1u
HD[0]
HD[1]
HD[2]
HD[3]
HD[4]
HD[5]
HD[6]
HD[7]
IC312
TC74VHCT244AFT
IC313
TC74VHCT244AFT
VCC
2G_B
1G_B
GND
D[0]
D[1]
D[2]
D[3]
D[4]
D[5]
D[6]
D[7]
R348
1k
JP301
JP
Q307
RN1402
R361
1k
JP301
OPEN : FLASH
CLOSE : DEBUG
R309
100
C309
FZ0. 1u
R357
4. 7k
R363
4. 7k
DVDDAT[1]
DVDERR
DVDDAT[5]
DVDDAT[3]
DVDREQ
DVDVALD
DVDDAT[7]
DVDDAT[0]
DVDDAT[2]
DVDDAT[4]
DVDDAT[6]
R343
1k
R359
4. 7k
R360
4. 7k
C317
FZ0. 1u
R356
4. 7k
R340
1k
R372
100
C316
FZ0. 1u
R373
100
R371
100
E316
E315
R319
100
C319
BK0. 001u
R321
1k
C322
BK0. 001u
R322
2. 2k
C320
FZ0. 1u
E331
R369
2K
R368
2K
C329
FZ0. 1u
R379
0
C337
FZ2. 2u
C321
100u6. 3V
R341
750F
R320
NC
E320
E321
E323
E324
E337
DVDSOS
DVDSTB
4448X/SSCTX
GNDP
X2FS
X4FS/SSCIRQ
AMPON/SSCRX
VDDP
INTDACX
LSADVD/SSCRDY
PLLCSX/ATIORDY
PUHOME
TRAY
TCLS
TOS/COAX
ADFLG
BRATE1
BRATE0
FPCDOUT
VDDP
FPCDIN
GNDP
DSPCLK
DSTBX
PUDET1
DECCSX
PLLCFGA
PLLCFGP
EJTCK
EJTMS
EJTDO
EJTDI
EJTRST
VDDP
NVMALE
GNDP
NVMCLE
NVMCE1X
NVMCEX
NVMREX
NVMWEX
NVMRBX
NVMRB1X
NVMCD
NVMWPX
NVMDA0
NVMDA5
VDDC
GNDC
NVMDA6
NVMDA7
XO
VDDP
GCLKA
TESTMODE
GNDDAC
SBADD
FCSERR
PUDET2
VDDDAC
GNDC
AIN1
IPXI
GNDP
I2CDAT
I2CCLK
VDDP
DISKWDI
STBYX
VREF
GNDDACSB
GNDDAC
RSET
B/UOUT
VDDDAC
R/VOUT
G/YOUT
VDDDAC
CVBSOUT
YOUT
VDDDAC
COUT
GNDDAC
GNDDAC
GNDDAC
VDDPA2
AMCLK
GNDPA2
ALRCLKI
ABCLKI
ALRCKO
ABCLKO
AOUT4
AOUT3
AOUT2
AOUT1
AOUT0
SPDIF
COSYNC
GNDP
B/UOUT
R/VOUT
G/YOUT
CVBSOUT
YOUT
COUT
LRCK
BCK
CSWDATA
SDATA
FDATA
SPDIF
BCK
SDATA
LRCK
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
A
B
C
D
E
F
G
H
J
K
L
M
N
P


7
8
A
B
C
CN302
52808-1991
RGBON
SOUTX
ASP1X
ASP2X
IPXO
IPXI
GND
CV-OUTPUT
VGND
Y-OUTPUT
VGND
C-OUTPUT
VGND
Y-OUTPUT
VGND
Cb-OUTPUT
VGND
Cr-OUTPUT
VGND
VIDEO-SIGNAL
I/F
R324 330
R352 330
R326 330
R353 330
R327 330
R370 330
R337 2.2k
R336 75F
Q306 2SA1162Y
CVBSOUT
R331 2.2k
YOUT
R328 75F
Q301 2SA1162Y
R338 2.2k
COUT
Q304 2SA1162Y
R332 2.2k
R334 75F
G/YOUT
R329 75F
Q302 2SA1162Y
R339 2.2k
B/UOUT
Q305 2SA1162Y
R333 2.2k
R335 75F
R/VOUT
R330 75F
Q303 2SA1162Y
C328 FZ0.1u
AUDIO SIGNAL L
AUDIO SIGNAL R
C914 B0.0033u
C915 B0.0018u
C906 FZ0.1u
C916 B0.0033u
C902 10u16V
C903 10u16V
C910 10u16V
C913 B0.0018u
R906 680
R909 680
C920 FZ0.1u
IC902 AD1958
CDATA MUTE ZERO FILTL AVDD OUTL AGND1 FILTR OUTR AGNDO LF1 LFO PGND PVDD
CCLK CLATCH PD/RST LRCK BCLK SDATA DVDD DGND SCLKO SCLK1 SCLK2 MCLK XOUT XIN
R903 4.7k
C907 FZ0.1u
C921 10u16V
R904 33
R905 33
R907 33
R908 150F
C917 CH10p
C919 CH33p
X901 AT49-27MHz
C918 CH33p
LRCK
BCK
FDATA
AUDIO-SIGNAL I/F
CN901
52808-1591
IEC958OUT
GND
HMUTE F
POWERON
FL output
GND
FR output
SL output
GND
SR output
C output
GND
SW output
HMUTE S
HMUTE CSW
R917 4.7k
R910 33
D901 1SS184
R911 33
R912 33
R913 33
R914 33
R915 33
R916 33
D902 1SS184
D903 1SS184
R918 4.7k
R919 4.7k
SPDIF
C901 FZ0.1u
IC901 TC7SH08FU
VCC GND
IC903 PCM1742KE
SCK ML MC MD ZL ZR Vcom AGND
BCK DATA LRCK DGND VDD VCC LOUT ROUT
C911 10u16V
R901 NC(2012size)
C908 10u16V
C923 FZ0.1u
C922 FZ0.1u
C904 10u16V
BCK
SDATA
LRCK
IC904 PCM1742KE
C912 10u16V
IC905 MM1575A
Noise Cont GND Vo Vin
C926 FZ0.1u
C928 FZ1u
C927 FZ1u
C924 FZ0.1u
C925 FZ0.1u
C905 10u16V
C909 10u16V
BCK
CSWDATA
LRCK
LRCK
BCK
CSWDATA
SDATA
FDATA
R341 750F


E504
D
E
F
1
2



NC
EJTAG I/F
2.54mm pitch
R302 10K
R301 10K
RM301 EXB28V103
R350 NC
R365 2K
RS232C-I/F TOP
CN601
53398-0690
GND
5V
TXD
WRIGHTX
RXD
RTS
E611
E612
E613
E614
E615
E616
R304 100
R305 100
RSTOX
PWRCNT
E+5V
HMUTE
DSORSTX
DSPSIO D-M
DSPSIO M-D
DSPCKX
DSTBX
GND
VKK-34V
F+
F-
E651
E652
E617
E601
E602
E603
E604
E605
E606
E608
E609
E610
R609 1K
R601 33
R602 33
R604 33
R605 33
R603 4.7K
R607 4.7K
R610 4.7K
R608 4.7K
CN603
52808-1391
FRONT-MPU-I/F
C601 BK0.0022u
C602 BK0.0022u
C603 BK0.0022u
E314
C303 FZ0.1u
R362 4.7K
R316 10K
E618
E619
R346 1K
FZ0.1u C302
C332 NC
IC301 TC7S08F
E322
R606 5.6K
S301 NC
R616 3.9K
R615 22K
C307 FZ0.1u
R358 4.7K
IC302 TC7S08F
R307 10K
C305 FZ0.1u
IC304 S80145CLMC
IC303 TC7S08F
R308 10K
C306 FZ0.1u
IC309 MBM29DL324BE
A16
A15
RM302 EXB28V510
N1 NVMWEX
M3 NVMRBX
M4 NVMRB1
N2 NVMCD
N3 NVMWPX
P1 NVMDA0
L5 NVMDA5
M5 VDDC
P2 GNDC
N4 NVMDA6
P3 NVMDA7
R3 NVMDA2
P4 NVMDA3
K5 NVMDA1
R4 VDDP
T10 NVMDA4
R2 GNDP
R1 SOUTX
T2 IPX0
T1 ASP2
U1 ASP1
U2 SVRSTX
W1 NC
Y1 RNVMRB
V2 PNVMCE
V1 TOPN
U3 DMFG
T3 DUPTD
N5 DUPRD
V3 VDDP
T12 DACS2X
W2 GNDP
Y2 RAMDAT
W3 RAMDAT
R5 RAMDAT
Y3 VDDP
W4 RAMDAT
Y4 RAMDAT
T13 RAMDAT
GNDP
RAMDA
RAMD[24]
RAMD[23]
RAMD[25]
RAMD[22]
RAMD[20]
RAMD[21]
RAMD[27]
3
4


IC306
ZR36750
IC309
MBM29DL324BE
IC305
MT48LC2M32B2
NVMWEX
NVMRBX
NVMRB1X
NVMCD
NVMWPX
NVMDA0
NVMDA5
VDDC
GNDC
NVMDA6
NVMDA7
NVMDA2
NVMDA3
NVMDA1
VDDP
NVMDA4
GNDP
SOUTX
IPX0
ASP2
ASP1
SVRSTX
NC
RNVMRBX
PNVMCEX
TOPN
DMFG
DUPTD
DUPRD
VDDP
DACS2X
GNDP
RAMDAT24
RAMDAT23
RAMDAT25
VDDP
RAMDAT22
RAMDAT20
RAMDAT21
GNDP
RAMDAT28
RAMDAT26
RAMDAT27
ABCLK1
ALRCK0
ABCLK0
AOUT4
AOUT3
AOUT2
AOUT1
AOUT0
SPDIF
COSYNC
GNDP
VCLKX2
VDDP
VIDO0
VIDO1
VIDO3
VIDO2
VIDO6/ICETDI
GNDC
VDDC
VIDO4/ICETCK
VIDO5/ICETDO
VIDO7/ICETMS
GNDP
CP1/VIDI1
CP0/VIDI0
CP2/VIDI2
CP4/VIDI4
CP3/VIDI3
CP5/VIDI5
CP6/VIDI6
CP7/VIDI7
YP8/VIDICLK
YP9/VIDIVALID
CP8/VIDIHS
CP9/VIDIVS
HSYNC
VSYNC
VCLK
LRCK
BCK
CSWDATA
SDATA
FDATA
SPDIF
E321
E323
E324
E325
VIDO[6]
VIDO[4]
VIDO[5]
VIDO[7]
C333 FZ0.1u
C324 FZ0.1u
ICE I/F 2.54m
J302 NC
R376 4.7K
R377 0
IC310 MM1561
VO VIN
NC SUB
GND
CN CONT
R345 2.2K
Q311 2SC2712Y
R375 1K
R378 4.7K
R380 NC(2012size)
Q310 2SA1037AK
R344 2.2K
R374 4.7K
C334 FZ2.2u
C335 FZ0.1u
C323 100u6.3V
R351 4.7K
R354 4.7K
R355 4.7K
R313 100
C308 FZ0.1u
C310 FZ0.1u
C311 FZ0.1u
C313 FZ0.1u
RAMDAT19
RAMDAT18
RAMDAT29
RAMDAT30
RAMDAT16
RAMDAT17
RAMDAT31
RAMADD4
RAMADD3
RAMADD6
RAMADD5
RAMADD1
RAMADD2
RAMADD8
RAMADD7
RAMADD10
RAMADD0
RAMADD11
RAMADD9
RAMBA1
RAMBA0
RAMCLEX
RAMCSX
RAMRASX
PCLK
RAMCASX
RAMWEX
RAMDQM
RAMDAT7
RAMDAT6
RAMDAT8
RAMDAT9
RAMDAT10
RAMDAT5
RAMDAT4
RAMDAT11
RAMDAT3
RAMDAT2
RAMDAT12
RAMDAT13
RAMDAT1
RAMDAT0
RAMDAT14
RAMDAT15
LDMN
MODRTSX
I2C-CLK
MODTD
I2C-DATA
MODDSRX
MODDTRX
MODDCDX
RM304 EXB28V510
RM306 EXB28V510
RM307 EXB28V510
RM308 EXB28V510
C306 FZ0.1u
R318 51
A16 BYTEX VSS DQ15 DQ7 DQ14 DQ6 DQ13 DQ5 DQ12 DQ4 VCC DQ11 DQ3 DQ10 DQ2 DQ9 DQ1 DQ8 DQ0 OEX VSS CEX A0
A15 A14 A13 A12 A11 A10 A9 A8 A19 NC WEX RESET NC NC RY/BYX A18 A17 A7 A6 A5 A4 A3 A2 A1
RM302 EXB28V510
RM303 EXB28V510
RM305 EXB28V510
RM309 EXB28V510
RM310 EXB28V510
R364 51
R342 51
RSTX
C312 FZ0.1u
C314 FZ0.1u
C315 FZ0.1u
C318 FZ0.1u
C325 FZ0.1u
C326 100u6.3V
L302 C3225ZT-150
R381 NC
R382 NC
VSS DQ15 VSSQ DQ14 DQ13 VDDQ DQ12 DQ11 VSSQ DQ10 DQ9 VDDQ DQ8 NC VSS DQM1 NC NC CLK VKE A9 A8 A7 A6 A5 A4 A3 DQM3 VSS NC DQ31 VDDQ DQ30 DQ29 VSSQ DQ28 DQ27 VDDQ DQ26 DQ25 VSSQ DQ24 VSS
VDD DQ0 VDDQ DQ1 DQ2 VSSQ DQ3 DQ4 VDDQ DQ5 DQ6 VSSQ DQ7 NC VDD DQM0 WEX CASX RASX CSX NC BA0 BA1 A10 A0 A1 A2 DQM2 VDD NC DQ16 VSSQ DQ17 DQ18 VDDQ DQ19 DQ20 VSSQ DQ21 DQ22 VDDQ DQ23 VDD
RAMD[0]–RAMD[31]
RAMA[0]–RAMA[11]
M+8V
VDD+5V
5
6

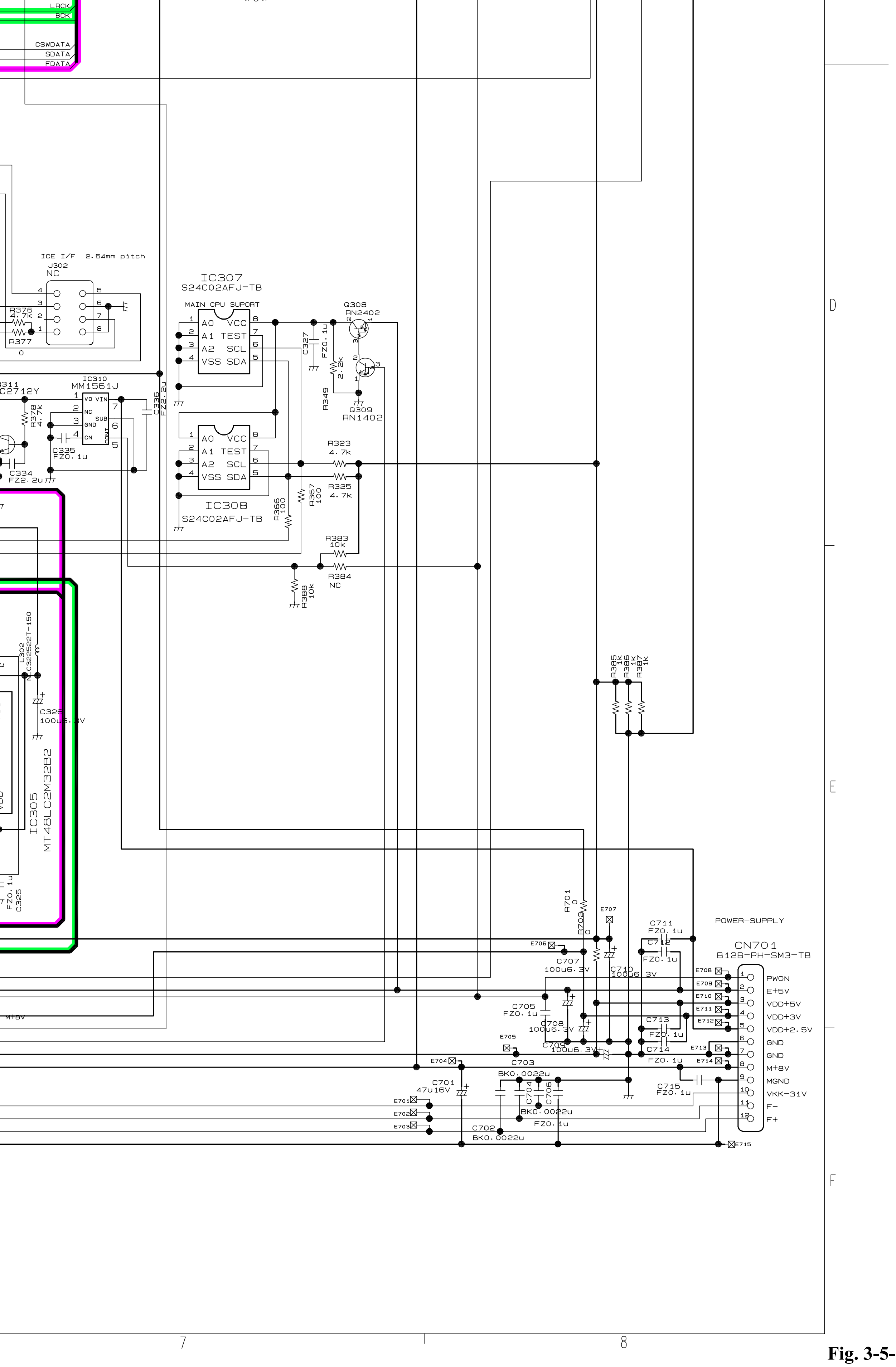
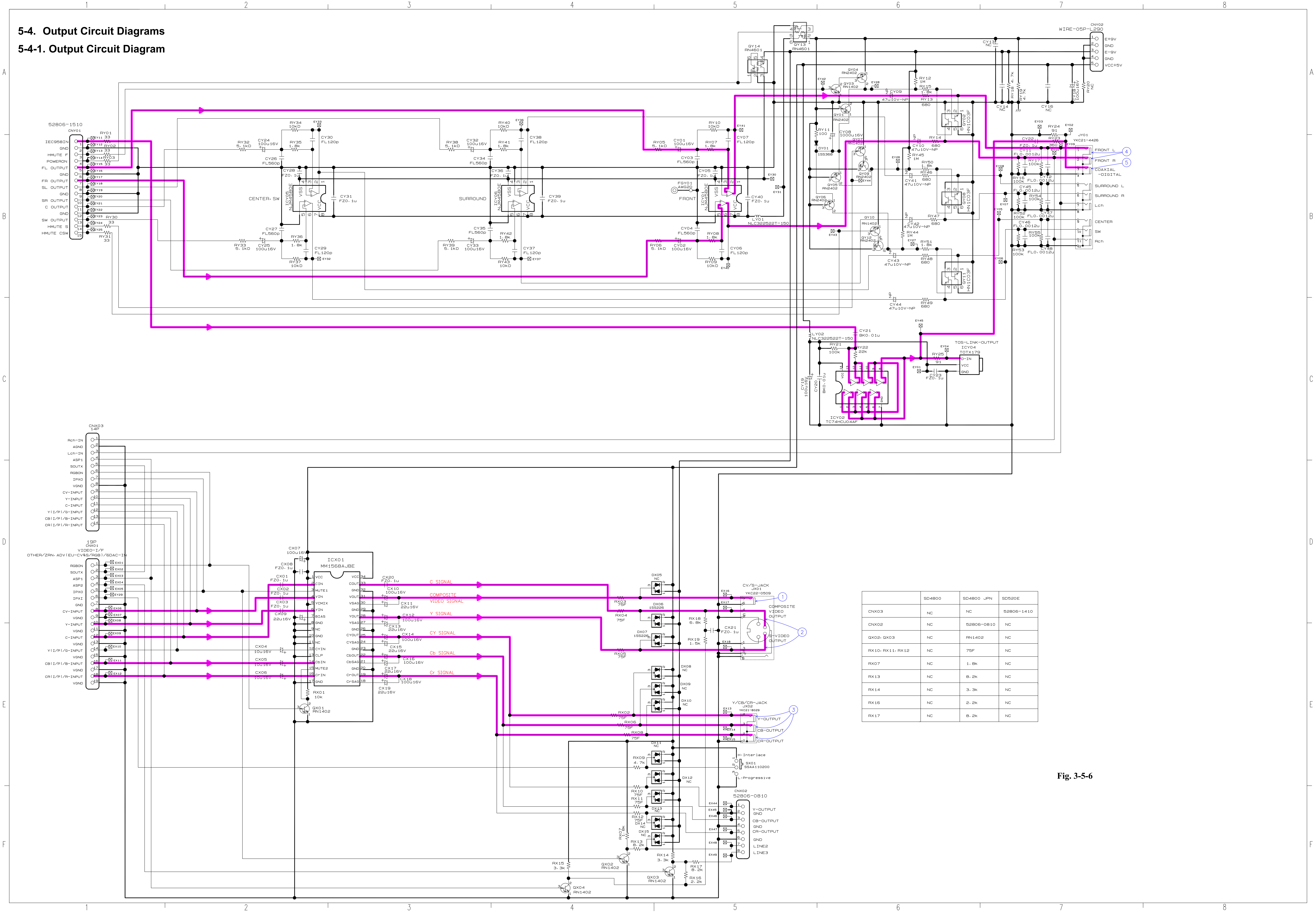

LRCK
BCK
CSWDATA
SDATA
FDATA
ICE I/F 2.54mm pitch
J302
NC
R376
4.7k
R377
0
IC307
S24C02AFJ-TB
MAIN CPU SUPORT
A0 VCC
A1 TEST
A2 SCL
VSS SDA
C327
FZ0.1u
Q308
RN2402
R349
2.2k
Q309
RN1402
IC308
S24C02AFJ-TB
R323
4.7k
R325
4.7k
R366
100
R367
100
R383
10k
R384
NC
R388
10k
IC310
MM1561J
R378
4.7k
C336
FZ2.2u
C335
FZ0.1u
C334
FZ2.2u
C2712Y
L302
NC32S22T-150
C326
100u6.3V
IC305
MT48LC2M32B2
C325
FZ0.1u
M+8V
R385
1k
R386
1k
R387
1k
R701
0
R702
0
E707
E706
C707
100u6.3V
C710
100u6.3V
C711
FZ0.1u
C712
FZ0.1u
C705
FZ0.1u
C708
100u6.3V
C709
100u6.3V
C713
FZ0.1u
C714
FZ0.1u
C715
FZ0.1u
E705
E704
C703
BK0.0022u
C701
47u16V
C704
BK0.0022u
C706
FZ0.1u
C702
BK0.0022u
E701
E702
E703
E708
E709
E710
E711
E712
E713
E714
E715
POWER-SUPPLY
CN701
B12B-PH-SM3-TB
PWON
E+5V
VDD+5V
VDD+3V
VDD+2.5V
GND
GND
M+8V
MGND
VKK-31V
F-
F+
D
E
F
7
8

Fig. 3-5-5

5-4. Output Circuit Diagrams

5-4-1. Output Circuit Diagram

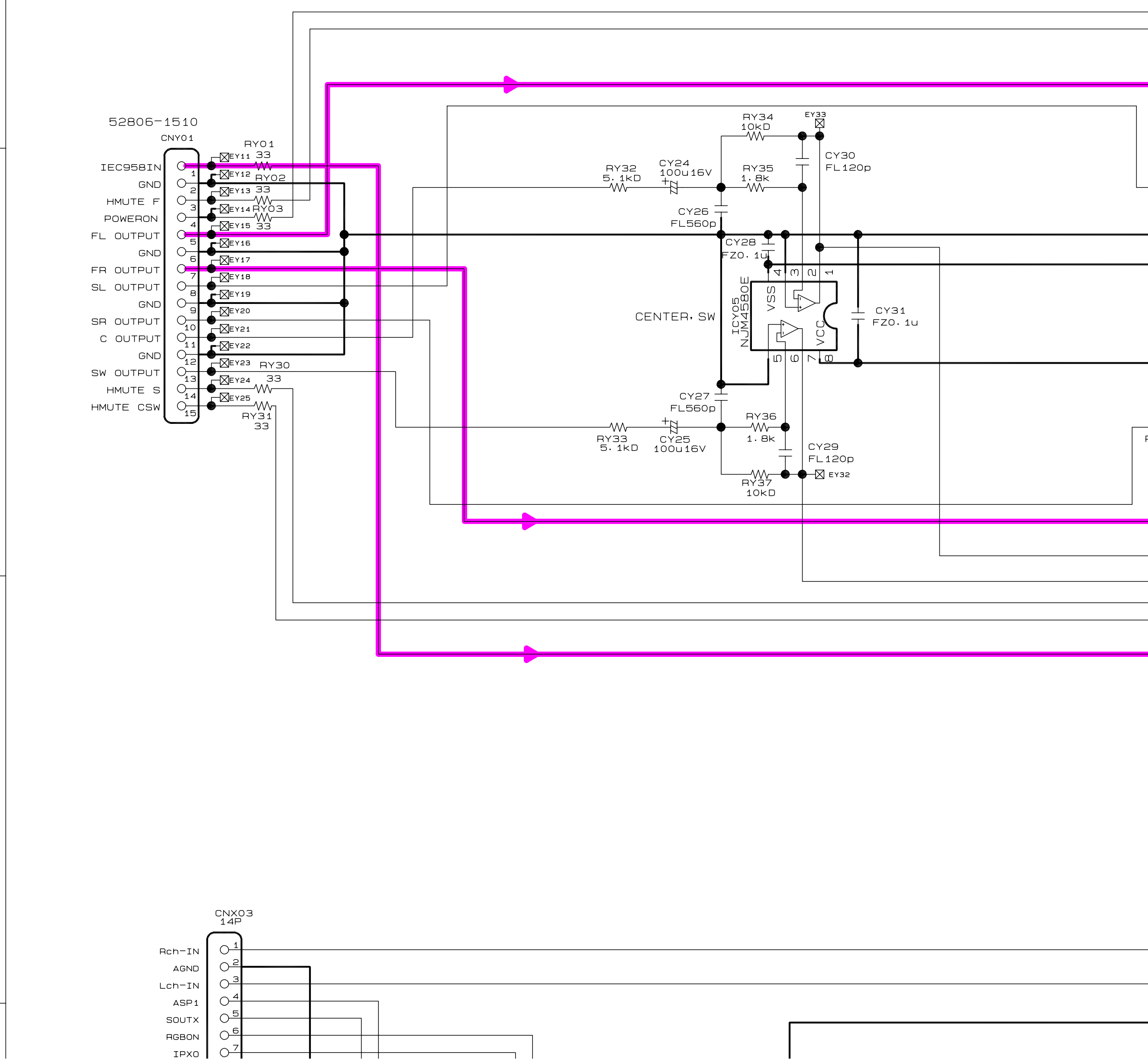

52806-1510
CNY01
IEC958IN
GND
HMUTE F
POWERON
FL OUTPUT
GND
FR OUTPUT
SL OUTPUT
GND
SR OUTPUT
C OUTPUT
GND
SW OUTPUT
HMUTE S
HMUTE CSW
CENTER, SW
SURROUND
FRONT
ICY05 NJM4580E
ICY06 NJM4580E
ICY01 NJM4580E
LY01 NLC322522T-150
LY02 NLC322522T-150
WIRE-05P-L290
CNY02
E+9V
GND
E-9V
GND
VCC+5V
JY01 YKC21-4426
FRONT L
FRONT R
COAXIAL -DIGITAL
SURROUND L
SURROUND R
Lch
CENTER
SW
Rch
TOS-LINK-OUTPUT
ICY04 TOTX179
ICY02 TC74HCU04AF
CNX03 14P
Rch-IN
AGND
Lch-IN
ASP1
SOUTX
RGBON
IPXO
VGND
CV-INPUT
Y-INPUT
C-INPUT
Y(I/P)/G-INPUT
CB(I/P)/B-INPUT
CR(I/P)/R-INPUT
19P
CNX01
VIDEO-I/F
OTHER/ZRN, ADV(EU-CVBS/RGB)/6DAC-IN
ICX01
MM1568AJBE
C SIGNAL
COMPOSITE VIDEO SIGNAL
Y SIGNAL
CY SIGNAL
Cb SIGNAL
Cr SIGNAL
CV/S-JACK
JX01
YKC22-0509
COMPOSITE VIDEO OUTPUT
S-VIDEO OUTPUT
Y/CB/CR-JACK
JX02
YKC21-8029
Y-OUTPUT
CB-OUTPUT
CR-OUTPUT
H-Interlace
SX01 SSAA110200
L-Progressive
CNX02
52806-0810
Y-OUTPUT
GND
CB-OUTPUT
GND
CR-OUTPUT
GND
LINE2
LINE3
1
2
3
4
5

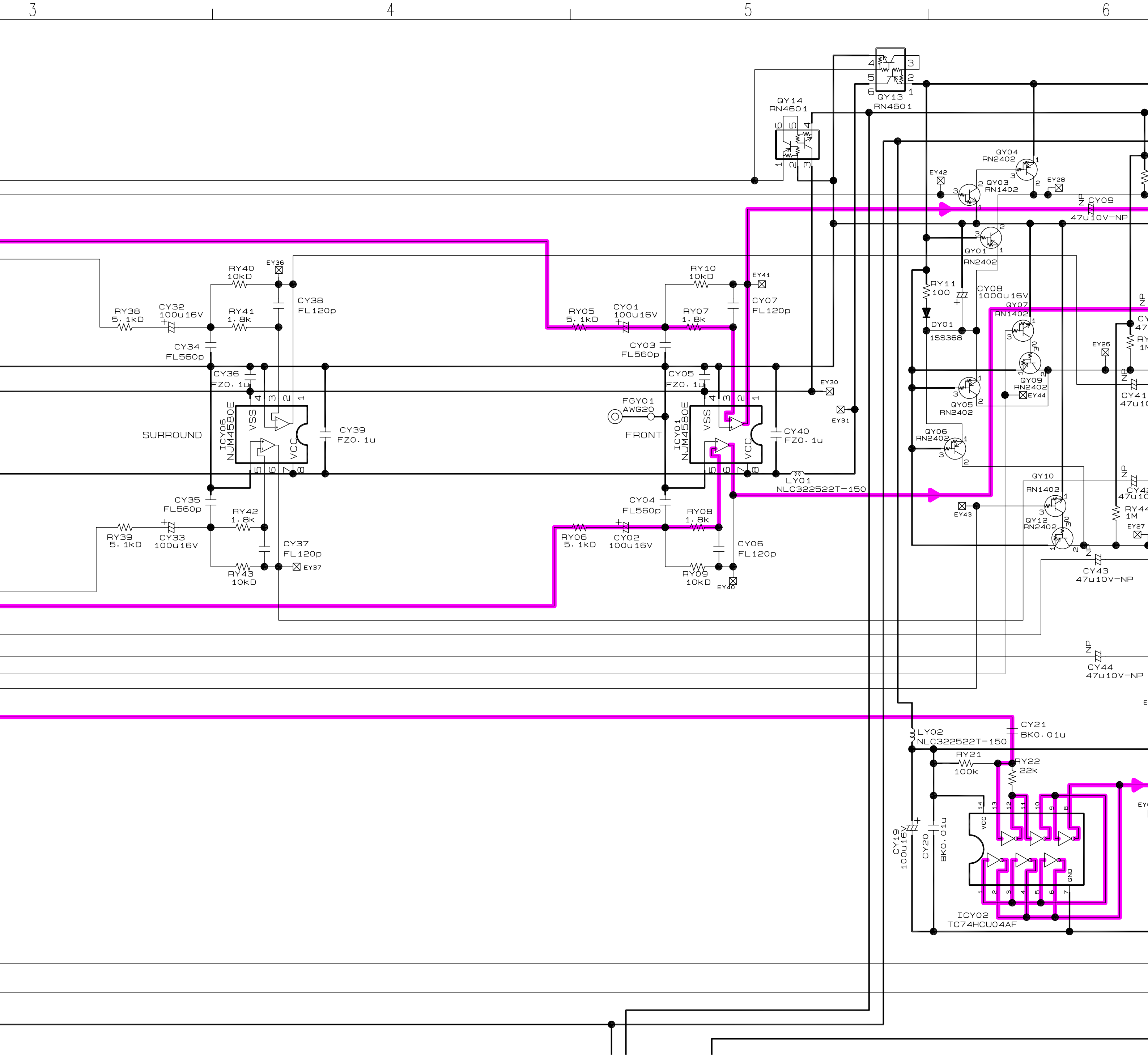
	SD4800	SD4800 JPN	SD520E
CNX03	NC	NC	52806-1410
CNX02	NC	52806-0810	NC
QX02, QX03	NC	RN1402	NC
RX10, RX11, RX12	NC	75F	NC
RX07	NC	1.8k	NC
RX13	NC	8.2k	NC
RX14	NC	3.3k	NC
RX16	NC	2.2k	NC
RX17	NC	8.2k	NC

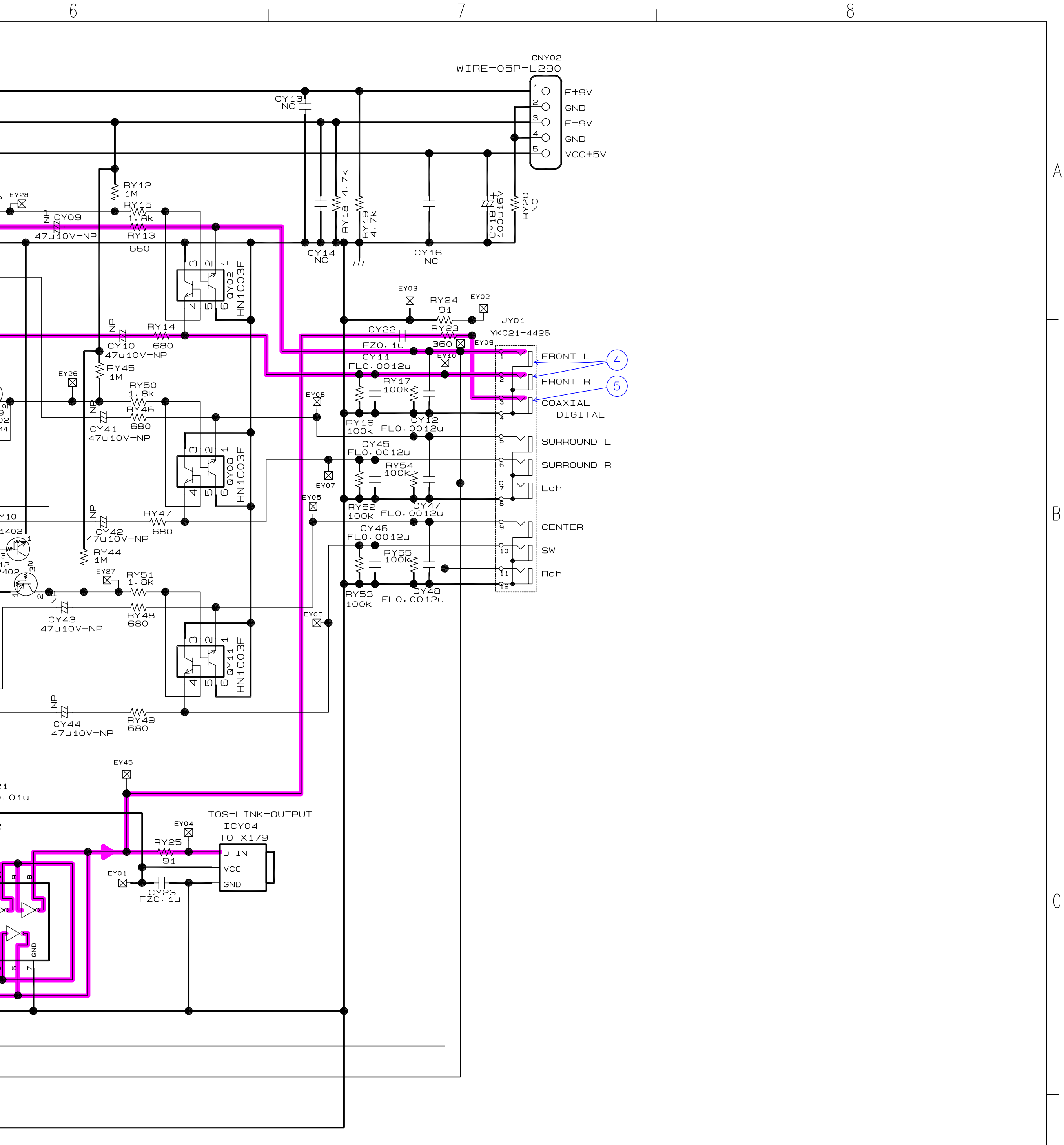
Fig. 3-5-6

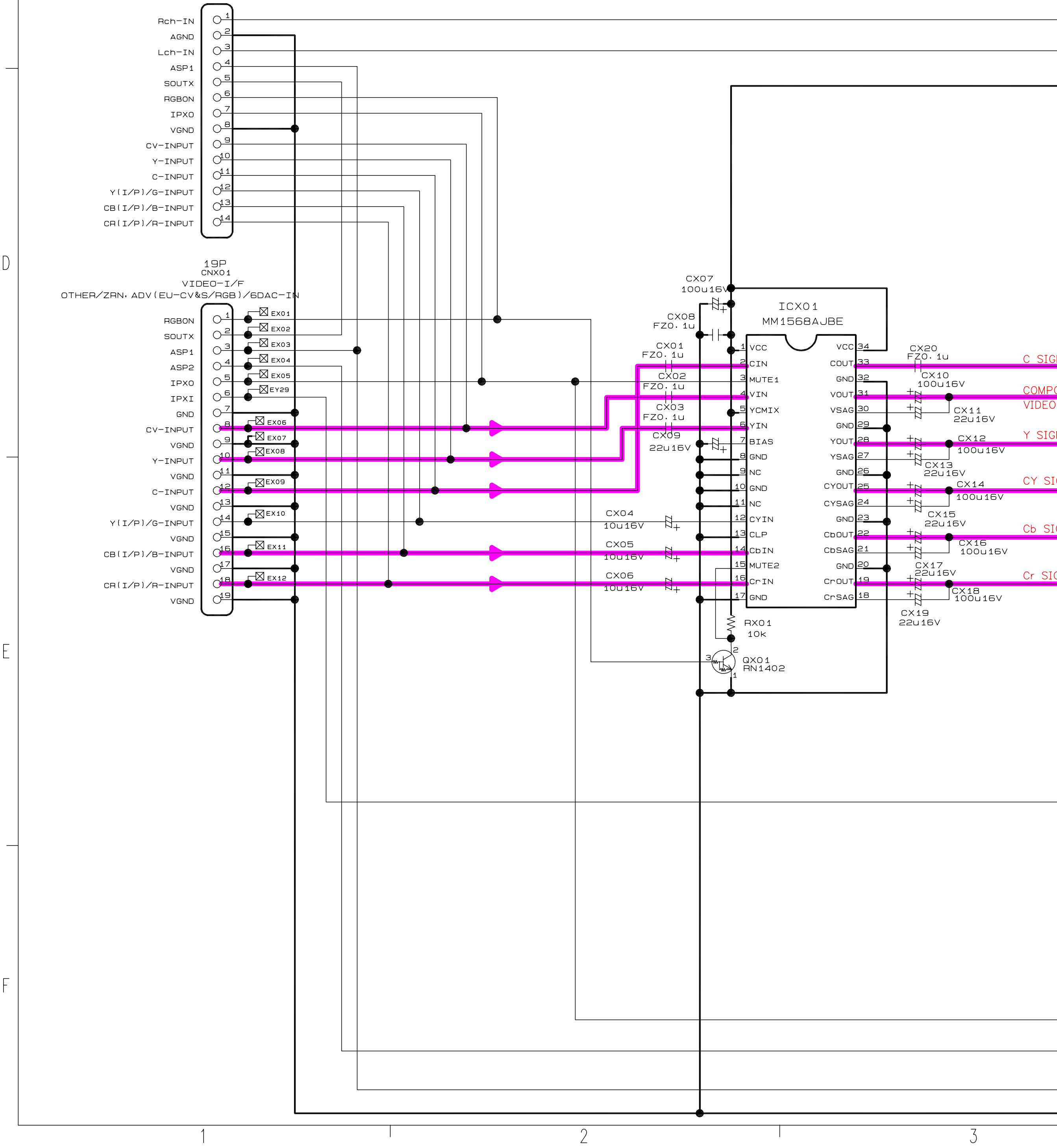
5-4. Output Circuit Diagrams

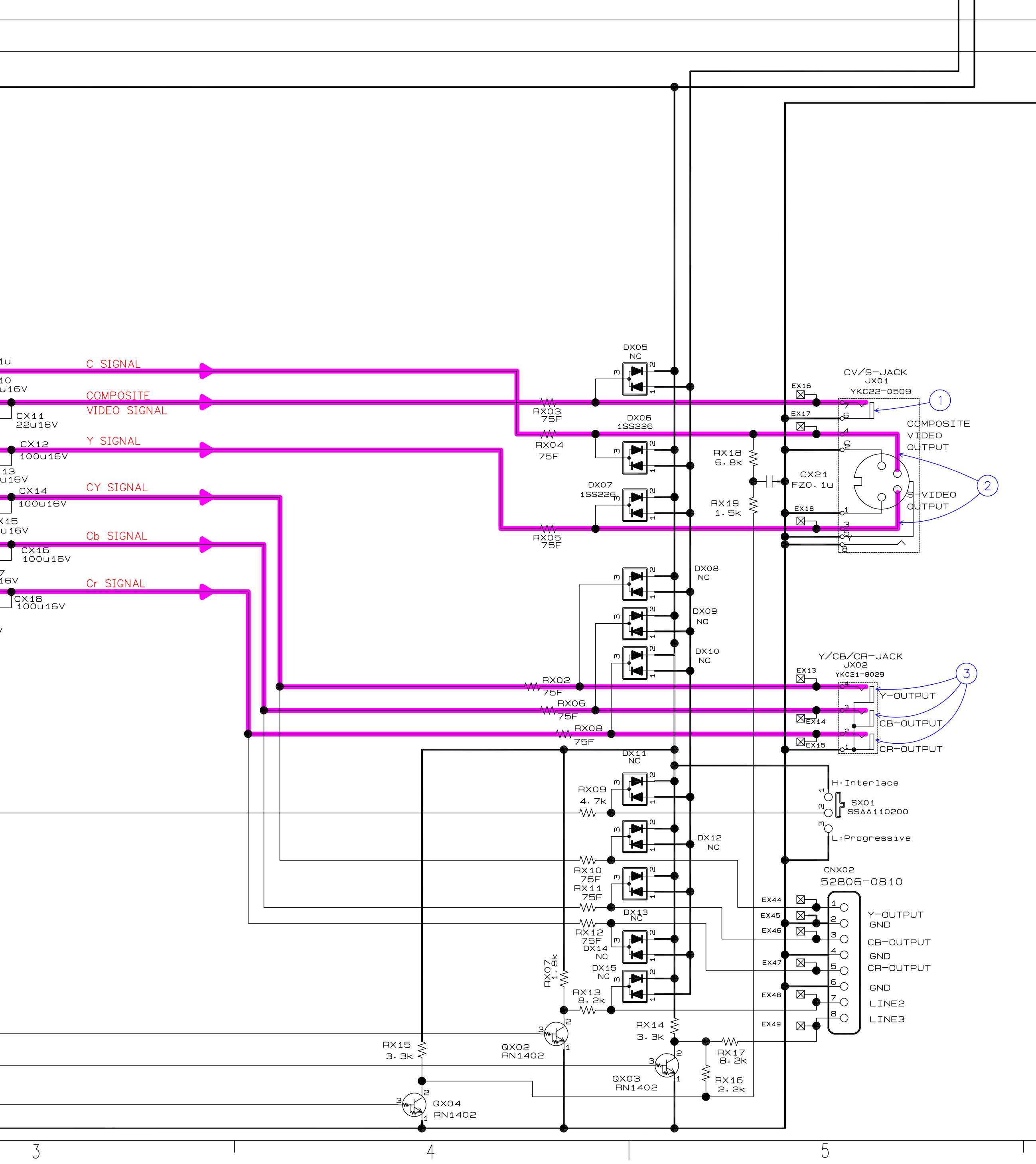
5-4-1. Output Circuit Diagram


1
2
3
A
B
C
52806-1510
CNY01
IEC958IN
GND
HMUTE F
POWERON
FL OUTPUT
GND
FR OUTPUT
SL OUTPUT
GND
SR OUTPUT
C OUTPUT
GND
SW OUTPUT
HMUTE S
HMUTE CSW
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
EY11
EY12
EY13
EY14
EY15
EY16
EY17
EY18
EY19
EY20
EY21
EY22
EY23
EY24
EY25
RY01
33
RY02
33
RY03
33
RY30
33
RY31
33
RY32
5.1kD
CY24
100u16V
RY34
10kD
EY33
RY35
1.8k
CY30
FL120p
CY26
FL560p
CY28
FZ0.1u
CENTER, SW
ICY05
NJM4580E
VSS
VCC
4
3
2
1
5
6
7
8
CY31
FZ0.1u
CY27
FL560p
RY36
1.8k
RY33
5.1kD
CY25
100u16V
CY29
FL120p
RY37
10kD
EY32
CNX03
14P
Rch-IN
AGND
Lch-IN
ASP1
SOUTX
RGBON
IPX0
1
2
3
4
5
6
7


3
4
5
6
QY13
RN4601
QY14
RN4601
QY04
RN2402
QY03
RN1402
EY42
EY28
NP
CY09
47u10V-NP
QY01
RN2402
RY11
100
CY08
1000u16V
QY07
RN1402
DY01
1SS368
EY26
QY09
RN2402
EY44
CY41
QY05
RN2402
QY06
RN2402
QY10
RN1402
QY12
RN2402
EY43
RY44
1M
EY27
CY43
47u10V-NP
CY44
47u10V-NP
RY40
10kD
EY36
RY38
5.1kD
CY32
100u16V
RY41
1.8k
CY38
FL120p
CY34
FL560p
CY36
FZ0.1u
SURROUND
ICY06
NJM4580E
VSS
VCC
CY39
FZ0.1u
CY35
FL560p
RY42
1.8k
RY39
5.1kD
CY33
100u16V
CY37
FL120p
RY43
10kD
EY37
RY10
10kD
EY41
RY05
5.1kD
CY01
100u16V
RY07
1.8k
CY07
FL120p
CY03
FL560p
CY05
FZ0.1u
EY30
FGY01
AWG20
FRONT
ICY01
NJM4580E
EY31
CY40
FZ0.1u
LY01
NLC322522T-150
CY04
FL560p
RY08
1.8k
RY06
5.1kD
CY02
100u16V
CY06
FL120p
RY09
10kD
EY40
CY21
BK0.01u
LY02
NLC322522T-150
RY21
100k
RY22
22k
CY19
100u16V
CY20
BK0.01u
VCC
GND
ICY02
TC74HCU04AF


6
7
8
A
B
C
CNY02
WIRE-05P-L290
E+9V
GND
E-9V
GND
VCC+5V
CY13
NC
RY18
4.7k
RY19
4.7k
CY14
NC
CY16
NC
CY18
100u16V
RY20
NC
RY12
1M
EY28
RY15
1.8k
CY09
47u10V-NP
RY13
680
QY02
HN1C03F
RY14
680
CY10
47u10V-NP
RY45
1M
EY26
RY50
1.8k
RY46
680
CY41
47u10V-NP
QY08
HN1C03F
RY47
680
CY42
47u10V-NP
RY44
1M
EY27
RY51
1.8k
RY48
680
CY43
47u10V-NP
QY11
HN1C03F
CY44
47u10V-NP
RY49
680
EY03
RY24
91
EY02
RY23
360
EY09
EY10
CY22
FZ0.1u
CY11
FL0.0012u
RY17
100k
RY16
100k
CY12
FL0.0012u
EY08
CY45
FL0.0012u
RY54
100k
EY07
EY05
RY52
100k
CY47
FL0.0012u
CY46
FL0.0012u
RY55
100k
RY53
100k
CY48
FL0.0012u
EY06
JY01
YKC21-4426
FRONT L
FRONT R
COAXIAL
-DIGITAL
SURROUND L
SURROUND R
Lch
CENTER
SW
Rch
④
⑤
EY45
TOS-LINK-OUTPUT
ICY04
TOTX179
EY04
RY25
91
D-IN
VCC
GND
EY01
CY23
FZ0.1u
GND


Rch-IN
AGND
Lch-IN
ASP1
SOUTX
RGBON
IPXO
VGND
CV-INPUT
Y-INPUT
C-INPUT
Y(I/P)/G-INPUT
CB(I/P)/B-INPUT
CR(I/P)/R-INPUT
1
2
3
4
5
6
7
8
9
10
11
12
13
14
D
19P
CNX01
VIDEO-I/F
OTHER/ZRN, ADV(EU-CV&S/RGB)/6DAC-IN
RGBON
SOUTX
ASP1
ASP2
IPXO
IPXI
GND
CV-INPUT
VGND
Y-INPUT
VGND
C-INPUT
VGND
Y(I/P)/G-INPUT
VGND
CB(I/P)/B-INPUT
VGND
CR(I/P)/R-INPUT
VGND
15
16
17
18
19
EX01
EX02
EX03
EX04
EX05
EY29
EX06
EX07
EX08
EX09
EX10
EX11
EX12
CX07
100u16V
CX08
FZ0.1u
CX01
FZ0.1u
CX02
FZ0.1u
CX03
FZ0.1u
CX09
22u16V
CX04
10u16V
CX05
10u16V
CX06
10u16V
ICX01
MM1568AJBE
1 VCC
2 CIN
3 MUTE1
4 VIN
5 YCMIX
6 YIN
7 BIAS
8 GND
9 NC
10 GND
11 NC
12 CYIN
13 CLP
14 CbIN
15 MUTE2
16 CrIN
17 GND
VCC 34
COUT 33
GND 32
VOUT 31
VSAG 30
GND 29
YOUT 28
YSAG 27
GND 26
CYOUT 25
CYSAG 24
GND 23
CbOUT 22
CbSAG 21
GND 20
CrOUT 19
CrSAG 18
CX20
FZ0.1u
CX10
100u16V
CX11
22u16V
CX12
100u16V
CX13
22u16V
CX14
100u16V
CX15
22u16V
CX16
100u16V
CX17
22u16V
CX18
100u16V
CX19
22u16V
RX01
10k
QX01
RN1402
C SIG
COMPO
VIDEO
Y SIG
CY SI
Cb SI
Cr SI
E
F
1
2
3


C SIGNAL
COMPOSITE
VIDEO SIGNAL
Y SIGNAL
CY SIGNAL
Cb SIGNAL
Cr SIGNAL
1u
10
u16V
CX11
22u16V
CX12
100u16V
13
u16V
CX14
100u16V
X15
u16V
CX16
100u16V
7
16V
CX18
100u16V
DX05
NC
RX03
75F
DX06
1SS226
RX04
75F
DX07
1SS226
RX05
75F
RX18
6.8k
CX21
FZ0.1u
RX19
1.5k
EX16
EX17
EX18
CV/S-JACK
JX01
YKC22-0509
COMPOSITE
VIDEO
OUTPUT
S-VIDEO
OUTPUT
①
②
③
DX08
NC
DX09
NC
DX10
NC
RX02
75F
RX06
75F
RX08
75F
Y/CB/CR-JACK
JX02
YKC21-8029
EX13
EX14
EX15
Y-OUTPUT
CB-OUTPUT
CR-OUTPUT
DX11
NC
RX09
4.7k
DX12
NC
H:Interlace
SX01
SSAA110200
L:Progressive
RX10
75F
RX11
75F
DX13
NC
RX12
75F
DX14
NC
DX15
NC
RX07
1.8k
RX13
8.2k
RX14
3.3k
RX15
3.3k
QX02
RN1402
QX03
RN1402
QX04
RN1402
RX17
8.2k
RX16
2.2k
CNX02
52806-0810
EX44
EX45
EX46
EX47
EX48
EX49
Y-OUTPUT
GND
CB-OUTPUT
GND
CR-OUTPUT
GND
LINE2
LINE3
3
4
5
6

CNX03
CNX02
QX02, QX03
RX10, RX11, RX12
RX07
RX13
RX14
RX16
RX17

	SD4800	SD4800 JPN	SD520E
CNX03	NC	NC	52806-1410
CNX02	NC	52806-0810	NC
QX02, QX03	NC	RN1402	NC
RX10, RX11, RX12	NC	75F	NC
RX07	NC	1.8k	NC
RX13	NC	8.2k	NC
RX14	NC	3.3k	NC
RX16	NC	2.2k	NC
RX17	NC	8.2k	NC

Fig. 3-5-6

D

E

F

6 7 8

Output Circuit Diagram

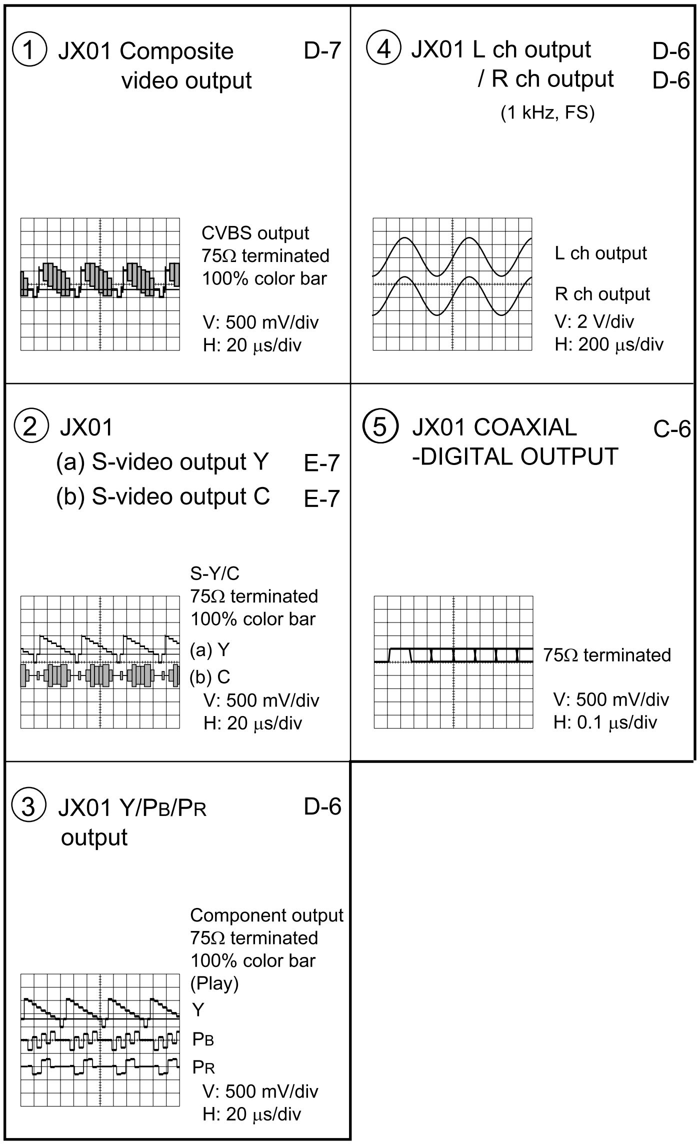
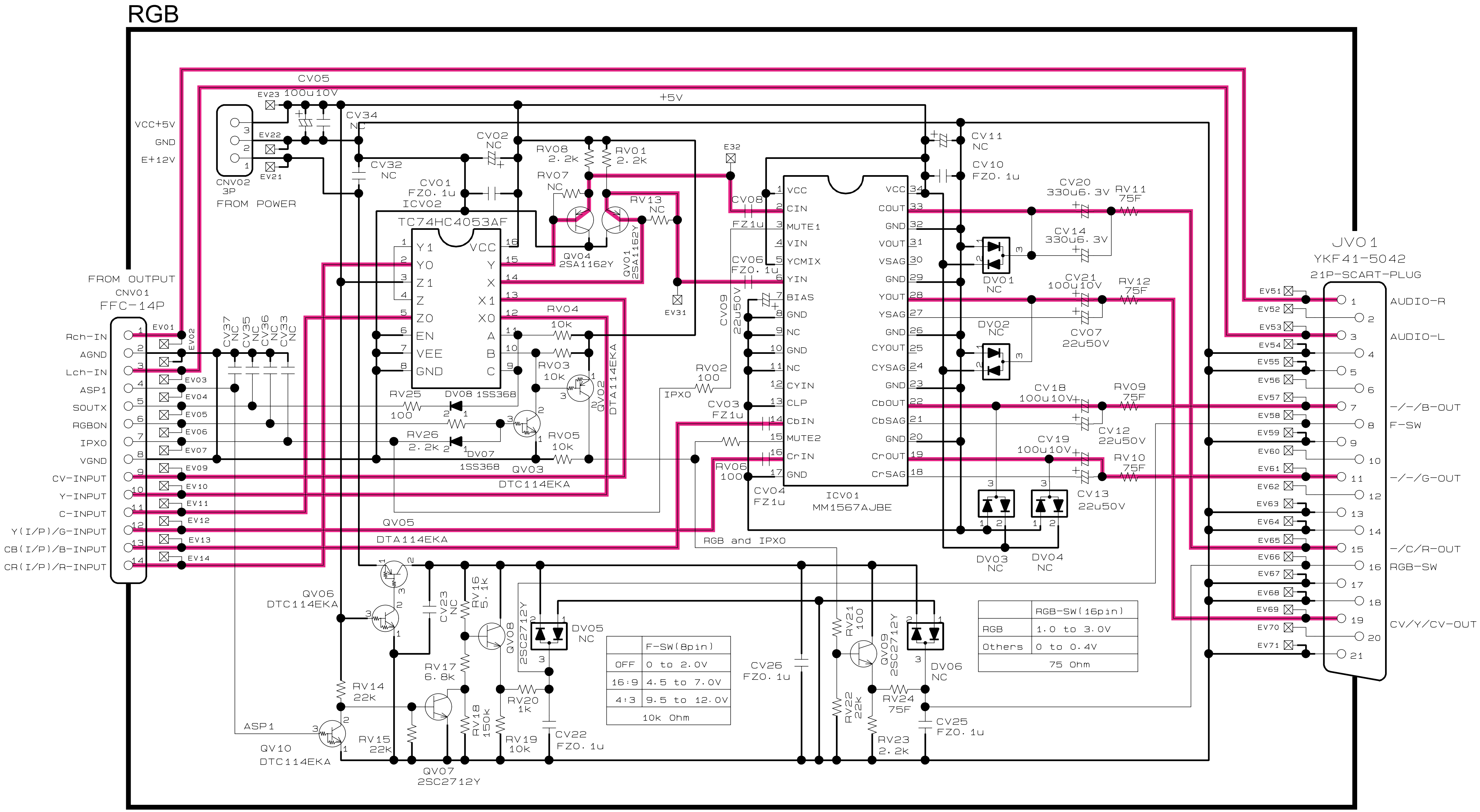


Fig. 3-5-7

1 2 3 4 5 6 7 8 9 10

A B C D E F G

5-4-2. Output-RGB Circuit Diagram


RGB
+5V
VCC+5V
GND
E+12V
CNV02
3P
FROM POWER
FROM OUTPUT
CNV01
FFC-14P
Rch-IN
AGND
Lch-IN
ASP1
SOUTX
RGBON
IPX0
VGND
CV-INPUT
Y-INPUT
C-INPUT
Y(I/P)/G-INPUT
CB(I/P)/B-INPUT
CR(I/P)/R-INPUT
CV05 100u10V
CV34 NC
CV32 NC
CV01 FZ0.1u
CV02 NC
ICV02
TC74HC4053AF
RV08 2.2k
RV01 2.2k
RV07 NC
RV13 NC
QV04 2SA1162Y
QV01 2SA1162Y
RV04 10k
RV03 10k
QV02 DTA114EKA
RV25 100
DV08 1SS368
RV26 2.2k
DV07 1SS368
RV05 10k
QV03 DTC114EKA
QV05 DTA114EKA
CV37 NC
CV35 NC
CV36 NC
CV33 NC
E32
EV31
CV08 FZ1u
CV06 FZ0.1u
CV09 22u50V
RV02 100
IPX0
CV03 FZ1u
RV06 100
CV04 FZ1u
ICV01
MM1567AJBE
RGB and IPX0
CV11 NC
CV10 FZ0.1u
CV20 330u6.3V
RV11 75F
CV14 330u6.3V
DV01 NC
CV21 100u10V
RV12 75F
DV02 NC
CV07 22u50V
CV18 100u10V
RV09 75F
CV12 22u50V
CV19 100u10V
RV10 75F
CV13 22u50V
DV03 NC
DV04 NC
JV01
YKF41-5042
21P-SCART-PLUG
AUDIO-R
AUDIO-L
-/-/B-OUT
F-SW
-/-/G-OUT
-/C/R-OUT
RGB-SW
CV/Y/CV-OUT
QV06 DTC114EKA
CV23 NC
RV16 5.1k
QV08 2SC2712Y
DV05 NC
RV17 6.8k
RV14 22k
RV18 150k
RV20 1k
RV19 10k
CV22 FZ0.1u
RV15 22k
QV07 2SC2712Y
ASP1
QV10 DTC114EKA
CV26 FZ0.1u
RV21 100
QV09 2SC2712Y
DV06 NC
RV22 22k
RV24 75F
RV23 2.2k
CV25 FZ0.1u

F-SW(8pin)	
OFF	0 to 2.0V
16:9	4.5 to 7.0V
4:3	9.5 to 12.0V
10k Ohm	

	RGB-SW(16pin)
RGB	1.0 to 3.0V
Others	0 to 0.4V
	75 Ohm

Fig. 3-5-8

5-5. Motor System Circuit Diagram

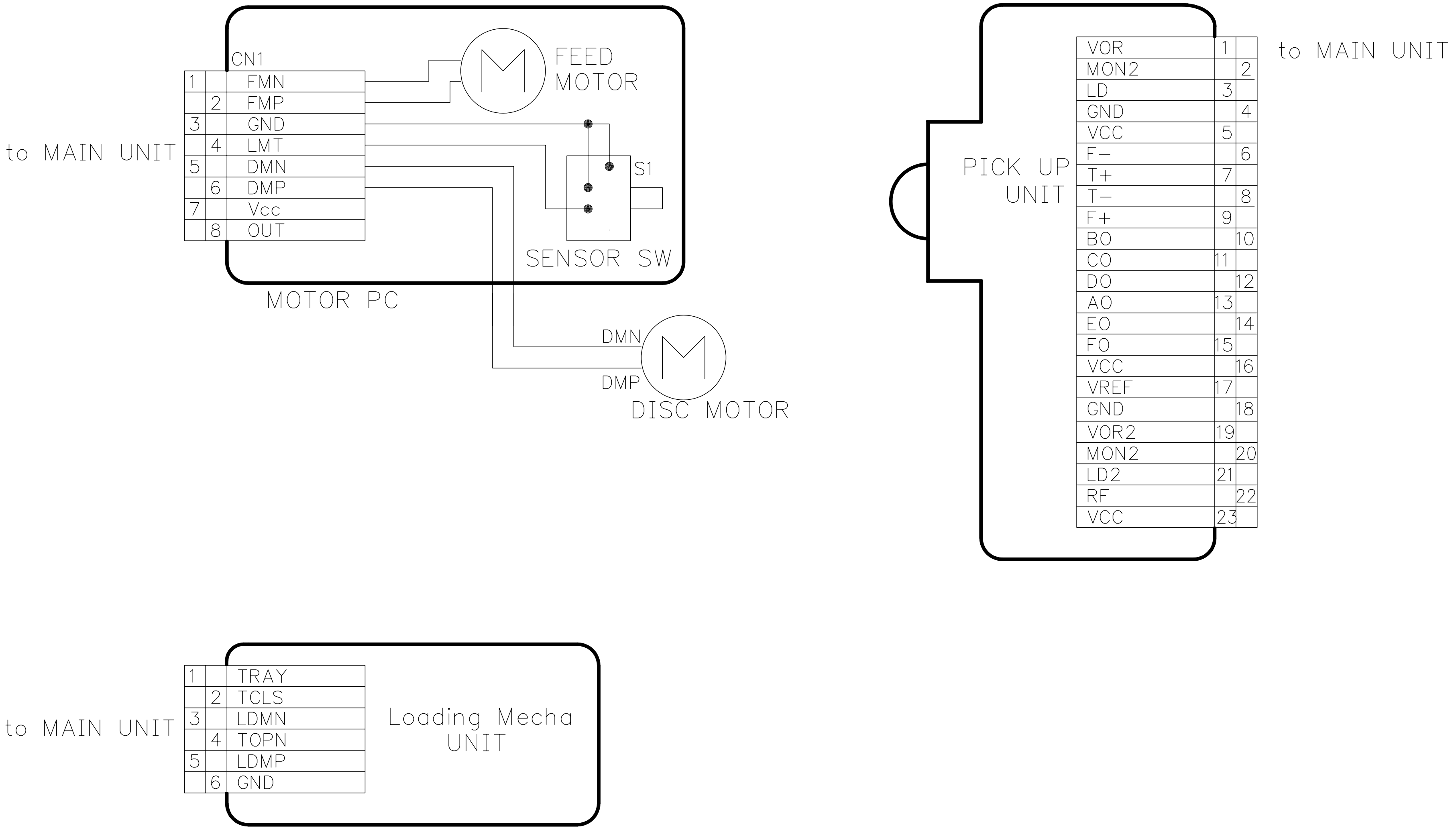

to MAIN UNIT
CN1
1 FMN
2 FMP
3 GND
4 LMT
5 DMN
6 DMP
7 Vcc
8 OUT
FEED MOTOR
S1
SENSOR SW
MOTOR PC
DMN
DMP
DISC MOTOR
PICK UP UNIT
VOR 1
MON2 2
LD 3
GND 4
VCC 5
F− 6
T+ 7
T− 8
F+ 9
BO 10
CO 11
DO 12
AO 13
EO 14
FO 15
VCC 16
VREF 17
GND 18
VOR2 19
MON2 20
LD2 21
RF 22
VCC 23
to MAIN UNIT
to MAIN UNIT
1 TRAY
2 TCLS
3 LDMN
4 TOPN
5 LDMP
6 GND
Loading Mecha UNIT

Fig. 3-5-9

6. PC BOARDS

6-1. Power Supply PC Board

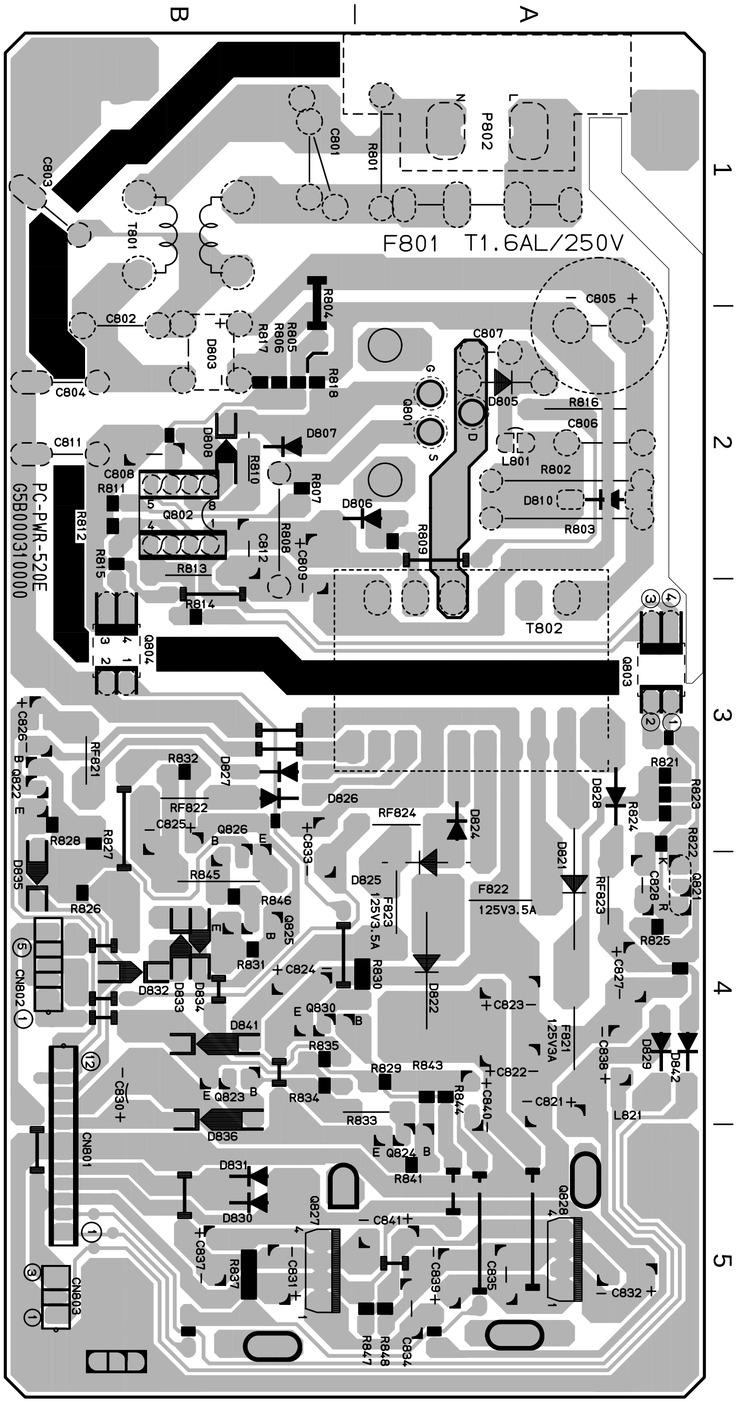

B
A
1
2
3
4
5
P802
C801
R801
C803
T801
F801 T1.6AL/250V
C805
C802
D803
R804
R805
R806
R817
R818
C807
C804
Q801
D805
R816
C806
L801
R802
D810
R803
C811
D808
D807
R810
C808
R811
R807
D806
Q802
R812
R808
C812
C809
R809
PC-PWR-520E
G5B00031000
R815
R813
R814
T802
Q804
Q803
C826
Q822
RF821
R832
D827
D826
R821
R823
D828
R824
RF822
C825
Q826
C833
RF824
D824
R822
Q821
R828
R827
D835
R845
D825
F823
125V3.5A
D821
RF823
C828
R826
R846
Q825
F822
125V3.5A
R825
CN802
D832
D833
D834
R831
C824
R830
D822
C827
C823
D841
Q830
R835
F821
125V3A
C836
D829
D842
C830
Q823
R834
R829
R843
R844
C822
C840
C821
L821
D836
R833
Q824
CN801
D831
R841
D830
Q827
C841
Q828
C837
R837
C831
C839
C835
C832
CN803
R847
R848
C834

Fig. 3-6-1 EU02 Power Supply PC Board (Bottom side)

Part No.	Location	Part No.	Location
C801	B1	P801	A1
C802	B2	Q801	A2
C803	B1	Q802	B2
C804	B2	Q804	B3
C805	A1	Q821	A4
C806	A2	Q822	B3
C807	A2	Q823	B4
C808	B2	Q824	A5
C809	B2	Q825	B4
C811	B2	Q826	B3
C812	B2	Q827	B5
C821	A4	Q828	A5
C822	A4	Q830	B4
C823	A4	R801	A1
C824	B4	R802	A2
C825	B3	R803	A2
C826	B3	R804	B1
C827	A4	R805	B2
C828	A4	R806	B2
C830	B4	R807	B2
C831	B5	R808	B2
C832	A5	R809	A2
C833	B3	R810	B2
C834	A5	R811	B2
C835	A5	R812	B2
C837	B5	R813	B2
C838	A4	R814	B3
C839	A5	R815	B2
C840	A4	R816	A2
C841	A5	R817	B2
CN801	B5	R818	B2
CN802	B4	R821	A3
CN803	B5	R822	A3
D803	B2	R823	A3
D805	A2	R824	A3
D806	A2	R825	A4
D807	B2	R826	B4
D808	B2	R827	B3
D810	A2	R828	B3
D821	A4	R829	A4
D822	A4	R830	A4
D824	A3	R831	B4
D825	A4	R832	B3
D826	B3	R833	A4
D827	B3	R834	B4
D828	A4	R835	B4
D829	A4	R837	B5
D830	B5	R841	A5
D831	B5	R843	A4
D832	B4	R844	A4
D833	B4	R845	B4
D834	B4	R846	B4
D835	B4	R847	A5
D836	B5	R848	A5
D841	B4	RF821	B3
D842	A4	RF822	B3
F821	A4	RF823	A3
F822	A4	RF824	A3
F823	A4	T801	B1
L801	A2	T802	A3
L821	A4		

6-2. Power Switch PC Board

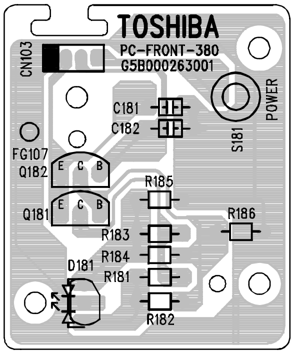

TOSHIBA
PC-FRONT-380
G5B000263001
CN103
C181
C182
POWER
S181
FG107
Q182
Q181
E C B
R185
R186
R183
R184
R181
R182
D181

Fig. 3-6-2 EU04
Power Switch PC Board
(Top side)

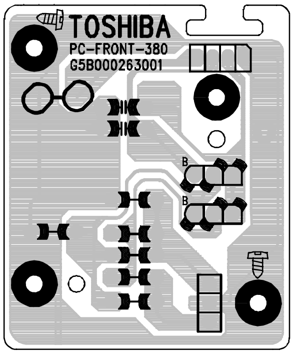

TOSHIBA
PC-FRONT-380
G5B000263001
B
B

Fig. 3-6-3 EU04
Power Switch PC Board
(Bottom side)

Part No.	Loca-tion
C181	B2
C182	B2
CN103	B2
D181	B2
FG107	B2
Q181	B2
Q182	B2
R181	B2
R182	B2
R183	B2
R184	B2
R185	B2
R186	B2
S181	B2

6-3. Main PC Board

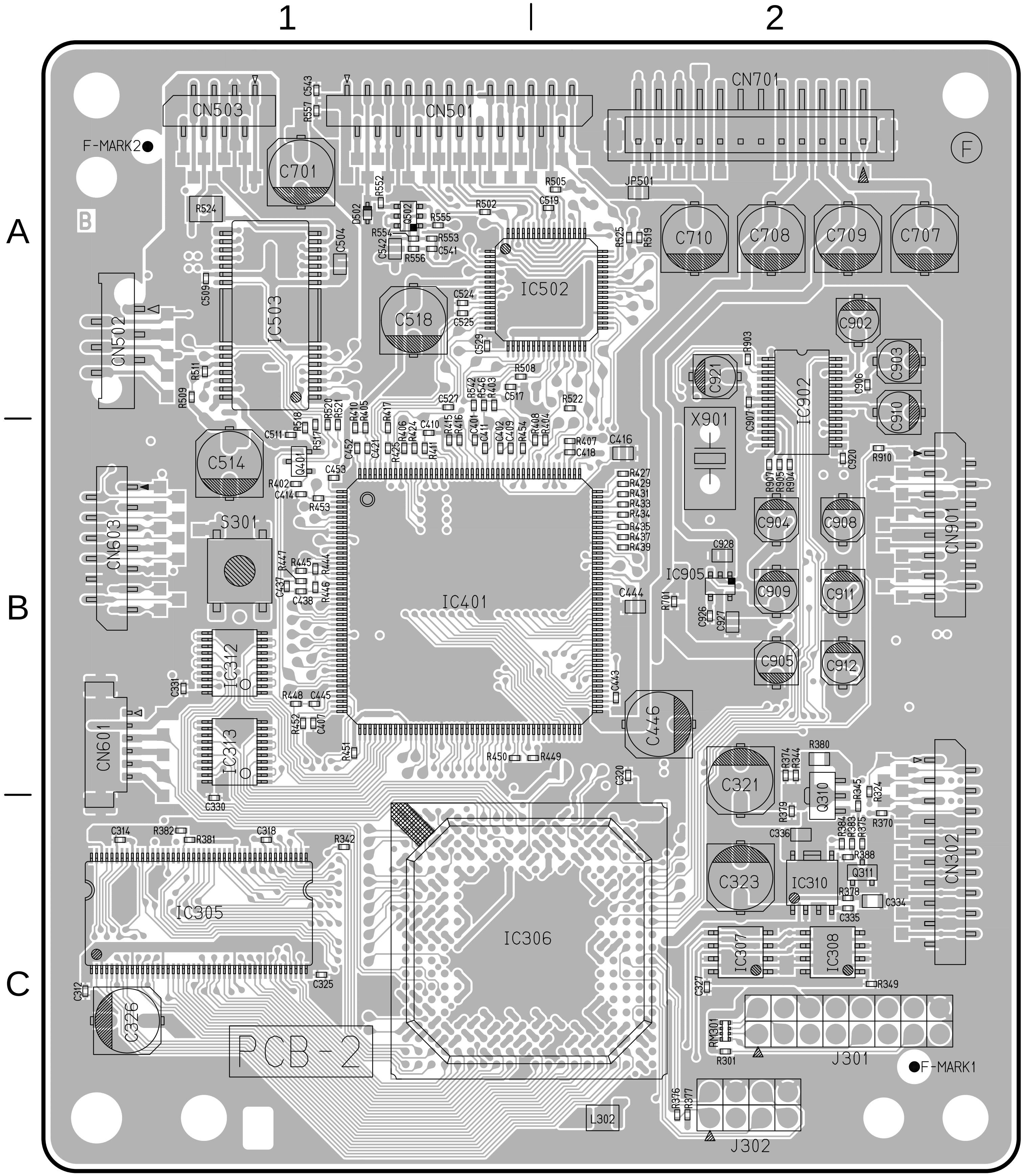

1
2
A
B
C
CN503
CN501
CN701
F-MARK2
C701
R524
C543
R557
R552
R505
C519
JP501
R502
D502
Q502
R555
R554
R553
C542
R556
C541
C504
R525
R519
C710
C708
C709
C707
IC503
IC502
C509
C518
C524
C525
C529
CN502
R511
R509
R508
C527
C517
R522
R903
C902
C921
IC902
C903
C906
C910
C907
X901
C511
C514
R402
C414
Q401
R453
C453
C452
C416
C418
R407
R427
R429
R431
R433
R434
R435
R437
R439
C928
R910
C920
CN901
C904
C908
CN603
S301
R447
R445
R444
R446
C437
C438
IC401
IC905
C444
R701
C926
C927
C909
C911
C905
C912
IC312
C331
R448
C445
R452
C407
C443
C446
CN601
IC313
R451
R450
R449
C320
R380
R374
R344
C321
Q310
R345
R324
R379
R370
C330
C314
R382
R381
C318
R342
C336
R384
R383
R375
R388
CN302
C323
IC310
Q311
R378
C334
C335
IC305
IC306
IC307
IC308
C325
C327
R349
C312
C326
RM301
R301
J301
F-MARK1
PCB-2
R376
R377
L302
J302

Fig. 3-6-4 EU01 Main PC Board (Top pattern and Top parts location diagram)

Main PC Board (Top Side)

Part No.	Location
C312	C1
C314	C1
C318	C1
C320	B2
C321	B2
C323	C2
C325	C1
C326	C1
C327	C2
C330	C1
C331	B1
C334	C2
C335	C2
C336	C2
C401	B1
C402	B1
C407	B1
C409	B1
C410	B1
C411	B1
C414	B1
C416	B2
C418	B2
C421	B1
C437	B1
C438	B1
C443	B2
C444	B2
C445	B1
C446	B2
C452	B1
C453	B1
C504	A1
C509	A1
C511	B1
C514	B1
C517	A1
C518	A1
C519	A2
C524	A1
C525	A1
C527	A1
C529	A1
C541	A1
C542	A1
C543	A1
C701	A1
C707	A2
C708	A2
C709	A2
C710	A2
C902	A2
C903	A2
C904	B2
C905	B2
C906	A2
C907	A2
C908	B2
C909	B2
C910	A2
C911	B2
C912	B2
C920	B2
C921	A2
C926	B2
C927	B2
C928	B2
CN302	C2
CN501	A1
CN502	A1
CN503	A1
CN601	B1
CN603	B1
CN701	A2
CN901	B2
D502	A1
E201	B2
E301	B2
E302	B2
E303	B2
E304	B2
E305	C2
E306	C2
E307	C2
E308	C2
E309	C2
E310	C2
E311	C2
E312	C2
E313	C2
E314	C1
E315	B2
E316	B2
E320	C2
E321	C2
E322	B1
E323	C2
E324	C2
E325	C2
E326	C1
E327	C1
E328	C1
E329	C1
E330	C1
E331	C2
E332	B1
E333	C1
E334	C1
E335	C1
E336	C1
E337	C1
E401	B2
E402	B1
E403	A1
E405	B1
E406	B1
E407	B1
E408	B2
E409	B2
E410	B1
E411	B2
E412	B2
E413	B1
E414	B1
E415	B1
E416	B1
E417	B1
E418	B1
E419	B1
E420	B1
E421	B1
E422	B1
E423	B1
E424	B1
E425	B1
E426	B1
E501	A1
E502	A1
E503	A1
E504	A1
E505	A2
E506	A2
E507	A1
E508	A1
E509	A1
E510	A1
E511	A1
E512	A1
E513	A1
E514	A1
E515	A1
E516	A1
E517	A1
E518	A1
E519	A2
E520	A2
E521	A2
E522	A1
E523	A1
E524	A1
E525	A1
E526	A1
E527	A1
E528	A1
E529	A1
E530	A1
E531	A1
E532	A1
E533	A2
E534	A1
E535	A2
E536	A2
E537	A1
E538	A1
E539	A1
E540	A1
E541	A1
E542	A1
E543	A1
E544	A1
E545	A2
E546	A1
E547	A1
E548	A2
E549	A1
E550	A1
E551	A1
E552	A1
E553	A1
E554	A1
E555	A1
E556	A1
E557	A1
E558	A1
E559	A1
E560	A1
E561	A2
E562	A2
E563	A2
E564	A2
E565	A2
E566	A2
E567	A2
E568	A2
E569	A2
E570	A2
E571	A2
E572	A2
E573	A2
E574	A2
E575	A2
E576	A2
E577	A2
E578	A2
E579	A1
E580	A1
E581	A1
E582	A1
E583	A2
E584	A1
E585	A1
E586	A1
E587	A1
E588	A1
E589	A1
E601	B1
E602	B1
E603	B1
E604	B1
E605	B1
E606	B1
E608	B1
E609	B1
E610	B1
E611	B1
E612	B1
E613	B1
E614	B1
E615	B1
E616	C1
E617	B1
E618	C1
E619	C1
E651	B1
E652	B1
E701	A2
E702	A2
E703	A2
E704	A1
E705	A2
E706	A2
E707	A2
E708	A2
E709	A2
E710	A2
E711	A2
E712	A2
E713	A2
E714	A2
E715	A2
E901	B2
E902	B2
E903	B2
E904	B2
E905	B2
E906	B2
E907	B2
E908	B2
E909	B2
E910	B2
E911	B2
E912	B2
E913	B2
E914	B2
E915	B2
F-MARK1	C2
F-MARK2	A1
IC305	C1
IC306	C1
IC307	C2
IC308	C2
IC310	C2
IC312	B1
IC313	B1
IC401	B1
IC502	A2
IC503	A1
IC902	A2
IC905	B2
J301	C2
J302	C2
JP301	B2
JP501	A2
L302	C2
Q310	C2
Q311	C2
Q401	B1
Q502	A1
R301	C2
R324	B2
R342	C1
R344	B2
R345	C2
R349	C2
R370	C2
R374	B2
R375	C2
R376	C2
R377	C2
R378	C2
R379	C2
R380	B2
R381	C1
R382	C1
R383	C2
R384	C2
R388	C2
R402	B1
R403	A1
R404	B2
R405	B1
R406	B1
R407	B2
R408	B2
R410	B1
R411	B1
R415	B1
R416	B1
R417	B1
R424	B1
R425	B1
R427	B2
R429	B2
R431	B2
R433	B2
R434	B2
R435	B2
R437	B2
R439	B2
R444	B1
R445	B1
R446	B1
R447	B1
R448	B1
R449	B2
R450	B1
R451	B1
R452	B1
R453	B1
R454	B1
R502	A1
R505	A2
R508	A1
R509	A1
R511	A1
R517	B1
R518	B1
R519	A2
R520	B1
R521	B1
R522	A2
R524	A1
R525	A2
R542	A1
R546	A1
R552	A1
R553	A1
R554	A1
R555	A1
R556	A1
R557	A1
R701	B2
R903	A2
R904	B2
R905	B2
R907	B2
R910	B2
RM301	C2
S301	B1
TP401	B1
TP402	B1
TP403	B2
TP404	B2
TP405	B1
TP406	B1
TP407	B2
TP408	B1
TP409	B2
TP410	B1
TP411	B1
TP412	B1
TP413	B1
TP414	B1
TP501	B1
TP502	A2
TP503	B1
TP504	B1
X901	B2

Main PC Board (Bottom Side)

Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location
C301	C1	C523	A1	R311	C2	R430	B1
C302	C2	C526	A1	R312	C2	R432	B1
C303	C1	C528	A1	R313	C1	R436	B1
C304	C2	C530	A2	R314	C2	R438	B1
C305	B2	C532	A1	R315	C2	R442	B1
C306	B2	C533	A1	R316	C2	R443	B1
C307	C1	C534	A2	R317	C2	R455	B2
C308	C1	C539	A2	R318	C2	R461	B2
C309	C2	C601	B2	R319	C1	R501	A2
C310	C2	C602	B2	R320	C1	R503	A2
C311	C1	C603	B2	R321	C1	R504	A2
C313	C2	C702	A1	R322	C1	R506	A1
C315	C2	C703	A1	R323	C1	R507	A1
C316	C2	C704	A1	R325	C1	R510	A1
C317	C2	C705	A1	R326	B1	R512	A1
C319	C1	C706	A1	R327	C1	R513	B2
C322	C1	C711	A1	R328	C1	R514	A2
C324	C1	C712	A1	R329	C1	R515	A2
C328	C1	C713	A1	R330	C1	R516	A2
C329	C1	C714	A1	R331	C1	R523	A2
C332	B2	C715	A1	R332	C1	R526	A2
C333	C2	C901	B1	R333	C1	R527	A2
C337	C1	C913	A1	R334	C1	R528	A2
C403	B2	C914	A1	R335	C1	R529	A2
C404	B2	C915	B1	R336	C1	R530	A2
C405	B2	C916	B1	R337	C1	R531	A2
C406	B2	C917	B1	R338	C1	R532	A2
C408	B2	C918	B1	R339	C1	R533	A2
C412	B2	C919	B1	R340	B2	R534	A2
C413	B2	C922	B1	R341	C1	R535	A1
C415	B2	C923	B1	R343	C2	R536	A1
C417	A2	C924	B1	R346	C2	R537	A2
C419	B1	C925	B1	R347	C2	R538	A2
C420	B2	D501	A1	R348	C2	R539	A1
C422	B1	D901	B1	R350	C2	R540	A2
C423	B2	D902	B1	R351	C1	R541	A2
C424	B1	D903	B1	R352	B1	R545	A1
C425	B1	F-MARK3	C1	R353	B1	R547	A2
C426	B1	F-MARK4	A2	R354	C1	R551	A2
C427	B1	IC301	B2	R355	C1	R601	B2
C428	B1	IC302	B2	R356	C1	R602	B2
C429	B1	IC303	B2	R357	C2	R603	B2
C430	B1	IC304	B2	R358	C2	R604	B2
C431	B1	IC309	B2	R359	C1	R605	B2
C432	B1	IC402	B2	R360	C1	R606	B2
C433	B1	IC501	A2	R361	C2	R607	B2
C434	B1	IC504	A2	R362	C2	R608	B2
C435	B1	IC901	B1	R363	C2	R609	B2
C436	B2	IC903	B1	R364	C2	R610	B2
C439	B1	IC904	B1	R365	C2	R615	B2
C440	B1	Q301	C1	R366	C1	R616	B2
C441	B2	Q302	C1	R367	C1	R702	A1
C442	B1	Q303	C1	R368	C1	R901	B1
C447	B2	Q304	C1	R369	C1	R906	B1
C448	B1	Q305	C1	R371	C1	R908	B1
C449	B2	Q306	C1	R372	C1	R909	B1
C450	B2	Q307	C2	R373	B1	R911	B1
C451	B2	Q308	C1	R385	A1	R912	B1
C501	A2	Q309	C1	R386	A1	R913	B1
C502	A2	Q501	A1	R387	A1	R914	B1
C503	A2	Q503	B2	R401	A2	R915	B1
C505	A2	Q504	A2	R409	B2	R916	B1
C506	A2	Q505	A2	R412	B1	R917	B1
C507	A2	Q506	A2	R413	B2	R918	B1
C508	A1	R302	C2	R414	B2	R919	B1
C510	A1	R303	C1	R418	B1	RM302	C2
C512	B2	R304	C2	R419	B2	RM303	C2
C513	A1	R305	C2	R420	B2	RM304	C2
C515	A2	R306	C1	R421	B2	RM305	C2
C516	A2	R307	B2	R422	B2	RM306	C2
C520	A2	R308	B2	R423	B2	RM307	C2
C521	A2	R309	C2	R426	B1	RM308	C2
C522	A1	R310	C1	R428	B1	RM309	C2
						RM310	C2

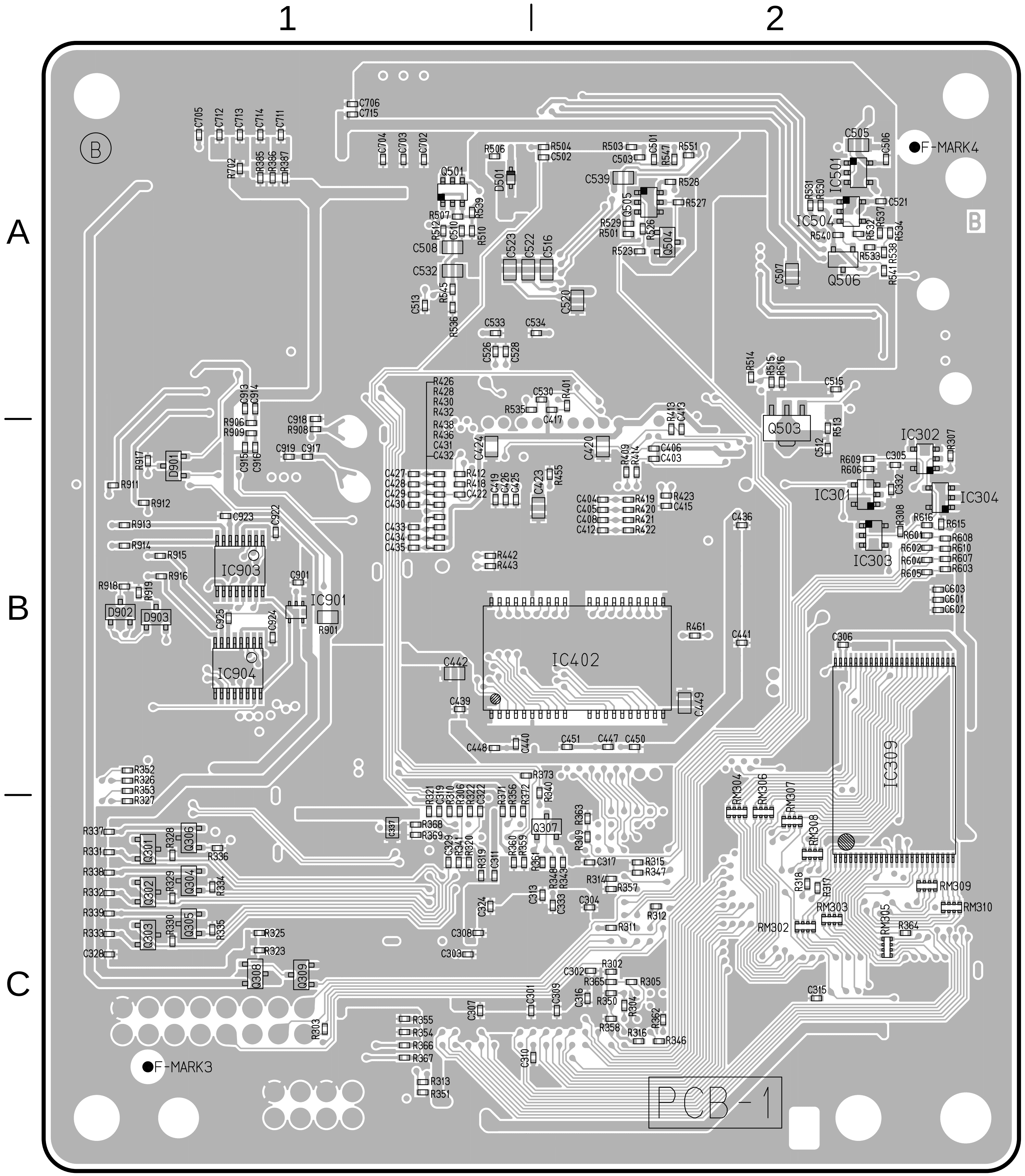

1
2
A
B
C
F-MARK4
F-MARK3
PCB-1
IC402
IC309
IC903
IC904
IC901
IC501
IC504
IC301
IC302
IC303
IC304
Q501
Q503
Q504
Q505
Q506
Q301
Q302
Q303
Q304
Q305
Q306
Q307
Q308
Q309
D501
D901
D902
D903
RM302
RM303
RM304
RM305
RM306
RM307
RM308
RM309
RM310
C505
C539
C508
C532
C523
C522
C516
C520
C507
C442
C449
C424
C420
C423

Fig. 3-6-5 EU01 Main PC Board (Bottom pattern and bottom parts location diagram)

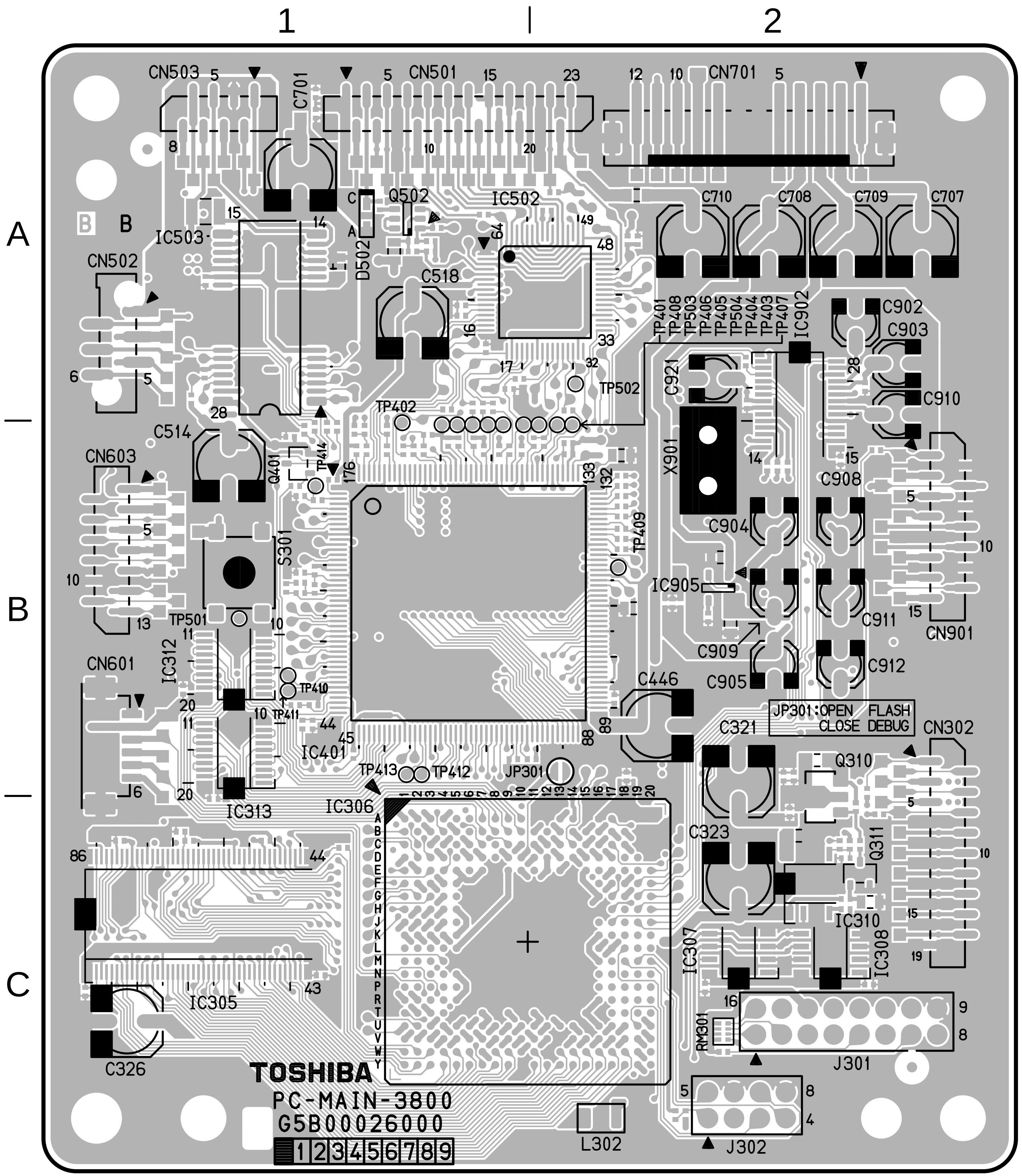

1
2
A
B
C
CN503
C701
CN501
CN701
C710
C708
C709
C707
Q502
IC502
D502
IC503
CN502
C518
TP401
TP408
TP503
TP406
TP405
TP504
TP404
TP403
TP407
IC902
C902
C903
C910
C921
X901
TP502
TP402
C514
CN603
Q401
TP414
S301
TP409
C908
C904
IC905
C911
C909
C912
C905
CN901
TP501
IC312
TP410
TP411
CN601
IC401
C446
JP301:OPEN FLASH
CLOSE DEBUG
CN302
C321
Q310
TP413
TP412
JP301
IC306
IC313
C323
Q311
IC310
IC307
IC308
RM301
J301
IC305
C326
TOSHIBA
PC-MAIN-3800
G5B00026000
1 2 3 4 5 6 7 8 9
L302
J302

Fig. 3-6-6 EU01 Main PC Board (Top pattern, character/symbol)

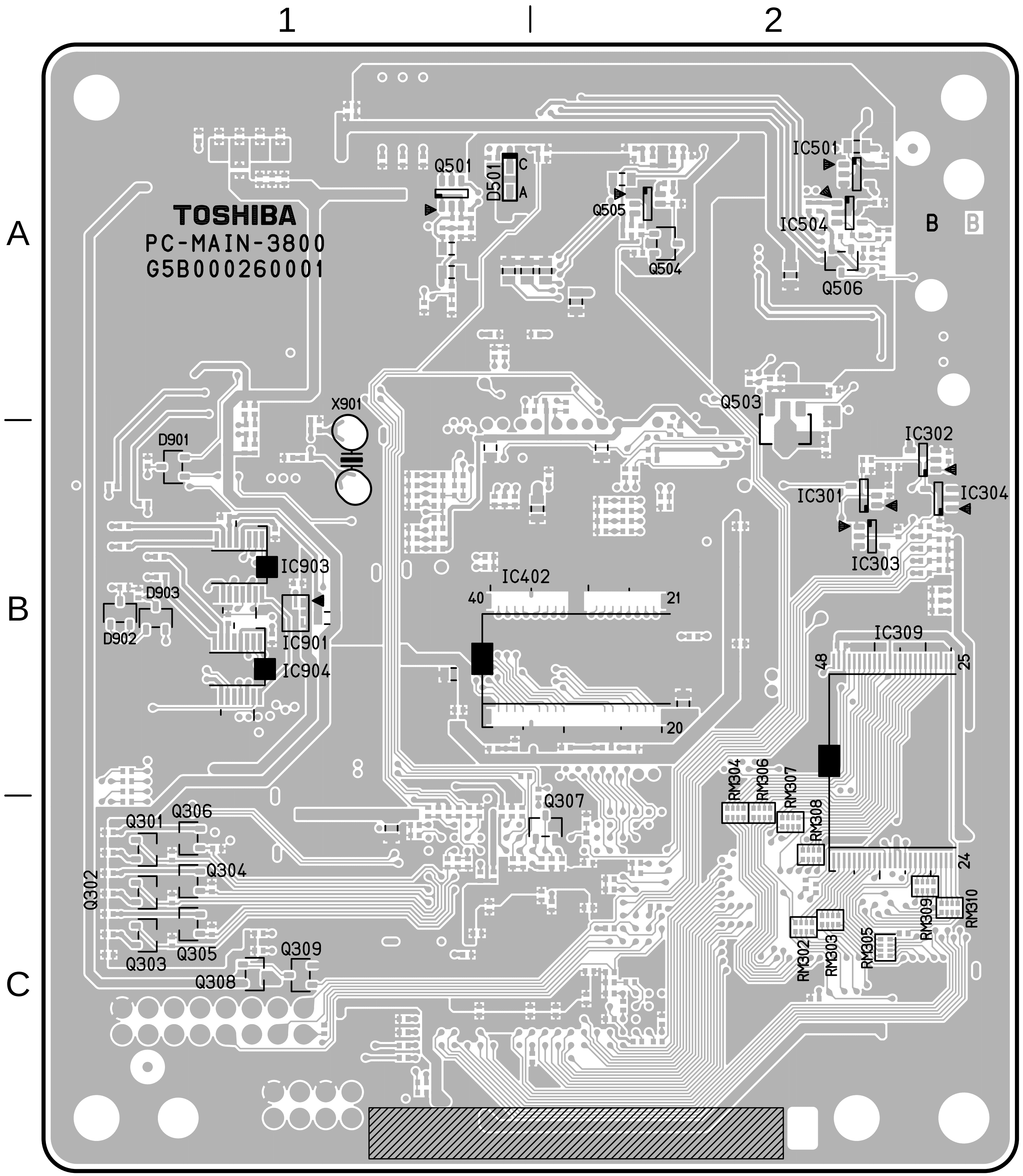

1
2
A
B
C
TOSHIBA
PC-MAIN-3800
G5B000260001
Q501
D501
C
A
Q505
Q504
IC501
IC504
Q506
B
X901
D901
Q503
IC302
IC301
IC304
IC303
IC903
D903
D902
IC901
IC904
IC402
40
21
20
IC309
48
25
24
RM304
RM306
RM307
RM308
RM309
RM310
RM302
RM303
RM305
Q307
Q301
Q306
Q304
Q302
Q305
Q303
Q309
Q308

Fig. 3-6-7 EU01 Main PC Board (Bottom pattern, character/symbol)

6-4. Output PC Board

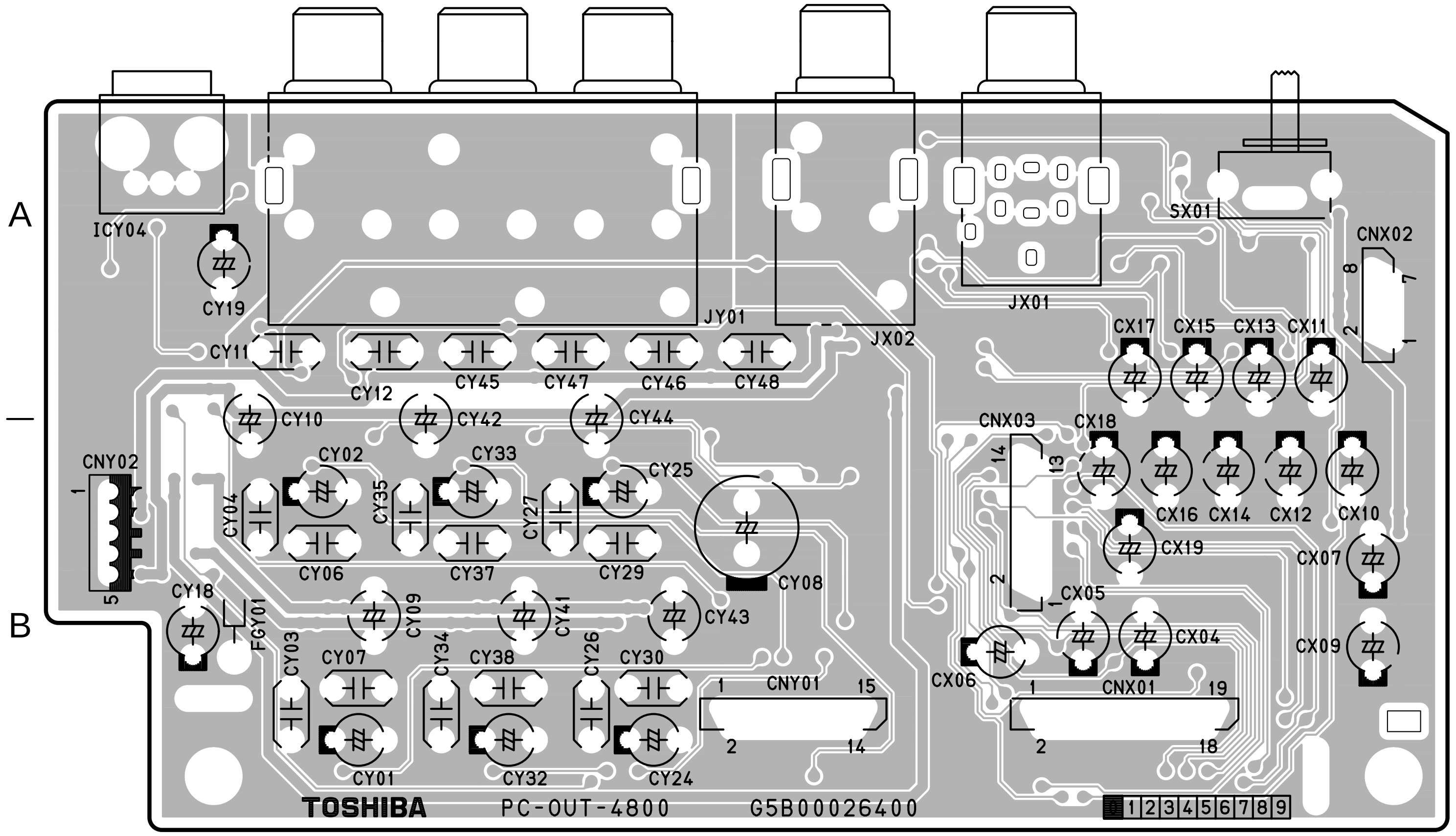


Fig. 3-6-8 EU05 Output PC Board (Top side)

Part No.	Location	Part No.	Location
CNX01	B3	CY12	A1
CNX02	A3	CY18	B1
CNX03	B3	CY19	A1
CNY01	B2	CY24	B2
CNY02	B1	CY25	B2
CX04	B3	CY26	B2
CX05	B3	CY27	B2
CX06	B3	CY29	B2
CX07	B3	CY30	B2
CX09	B3	CY32	B1
CX10	B3	CY33	B1
CX11	A3	CY34	B1
CX12	B3	CY35	B1
CX13	A3	CY37	B1
CX14	B3	CY38	B1
CX15	A3	CY41	B2
CX16	B3	CY42	B1
CX17	A3	CY43	B2
CX18	B3	CY44	A2
CX19	B3	CY45	A1
CY01	B1	CY46	A2
CY02	B1	CY47	A2
CY03	B1	CY48	A2
CY04	B1	FGY01	B1
CY06	B1	ICY04	A1
CY07	B1	JX01	A3
CY08	B2	JX02	A2
CY09	B1	JY01	A1
CY10	B1	SX01	A3
CY11	A1		

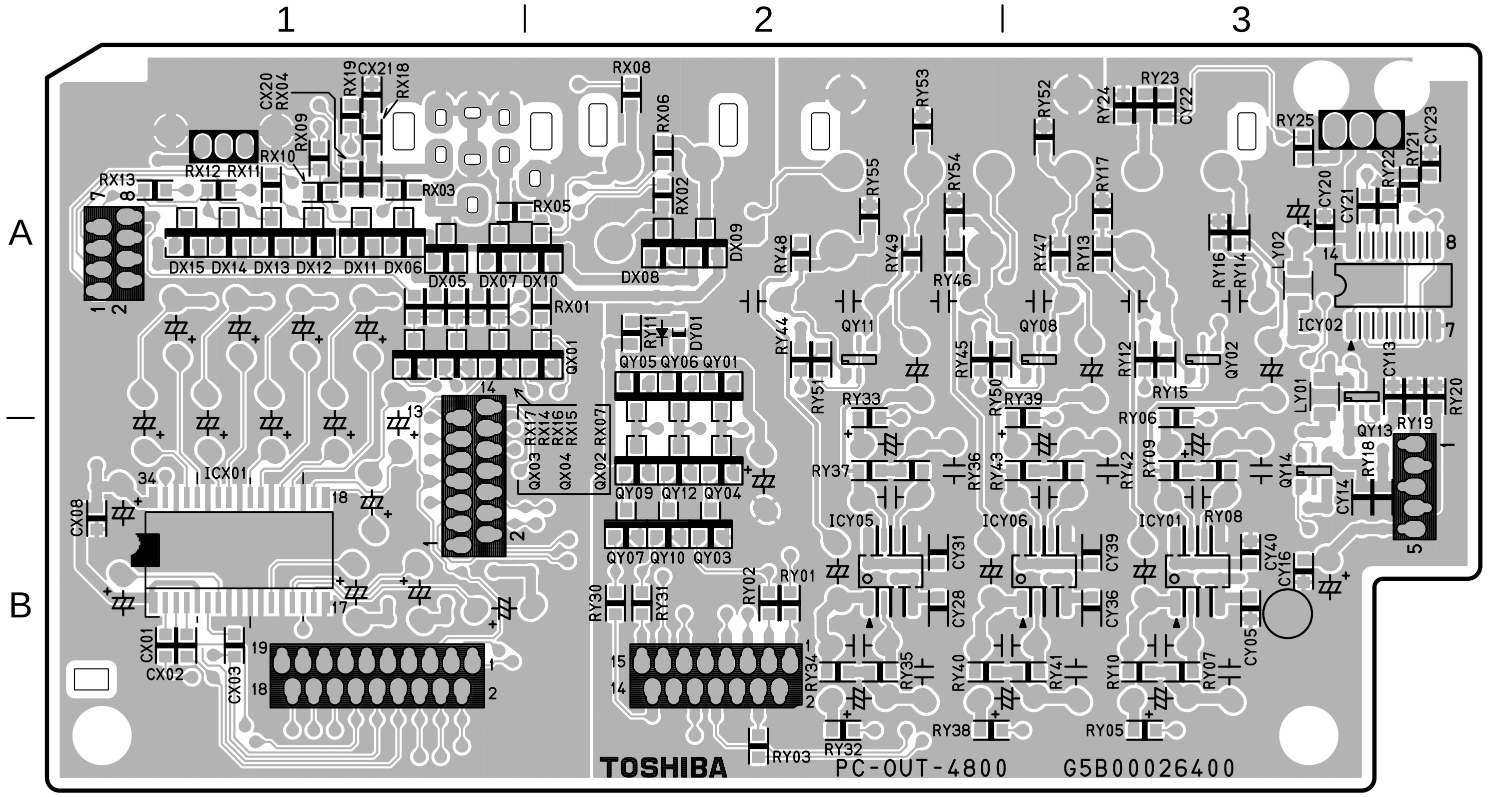


Fig. 3-6-9 EU05 Output PC Board (Bottom side)

Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location
CX01	B1	ICY01	B3	RX09	A1	RY23	A3
CX02	B1	ICY02	A3	RX10	A1	RY24	A3
CX03	B1	ICY05	B2	RX11	A1	RY25	A3
CX08	B1	ICY06	B3	RX12	A1	RY30	B2
CX20	A1	LY01	A3	RX13	A1	RY31	B2
CX21	A1	LY02	A3	RX14	A1	RY32	B2
CY05	B3	QX01	A2	RX15	A1	RY33	A2
CY13	A3	QX02	A1	RX16	A1	RY34	B2
CY14	B3	QX03	A1	RX17	A1	RY35	B2
CY16	B3	QX04	A1	RX18	A1	RY36	B2
CY20	A3	QY01	A2	RX19	A1	RY37	B2
CY21	A3	QY02	A3	RY01	B2	RY38	B2
CY22	A3	QY03	B2	RY02	B2	RY39	A3
CY23	A3	QY04	B2	RY03	B2	RY40	B2
CY28	B2	QY05	A2	RY05	B3	RY41	B3
CY31	B2	QY06	A2	RY06	A3	RY42	B3
CY36	B3	QY07	B2	RY07	B3	RY43	B3
CY39	B3	QY08	A3	RY08	B3	RY44	A2
CY40	B3	QY09	B2	RY09	B3	RY45	A2
DX05	A1	QY10	B2	RY10	B3	RY46	A2
DX06	A1	QY11	A2	RY11	A2	RY47	A3
DX07	A1	QY12	B2	RY12	A3	RY48	A2
DX08	A2	QY13	A3	RY13	A3	RY49	A2
DX09	A2	QY14	B3	RY14	A3	RY50	A2
DX10	A2	RX01	A2	RY15	A3	RY51	A2
DX11	A1	RX02	A2	RY16	A3	RY52	A3
DX12	A1	RX03	A1	RY17	A3	RY53	A2
DX13	A1	RX04	A1	RY18	B3	RY54	A2
DX14	A1	RX05	A1	RY19	A3	RY55	A2
DX15	A1	RX06	A2	RY20	A3		
DY01	A2	RX07	A1	RY21	A3		
ICX01	B1	RX08	A2	RY22	A3		

6-5. Output-RGB PC Board

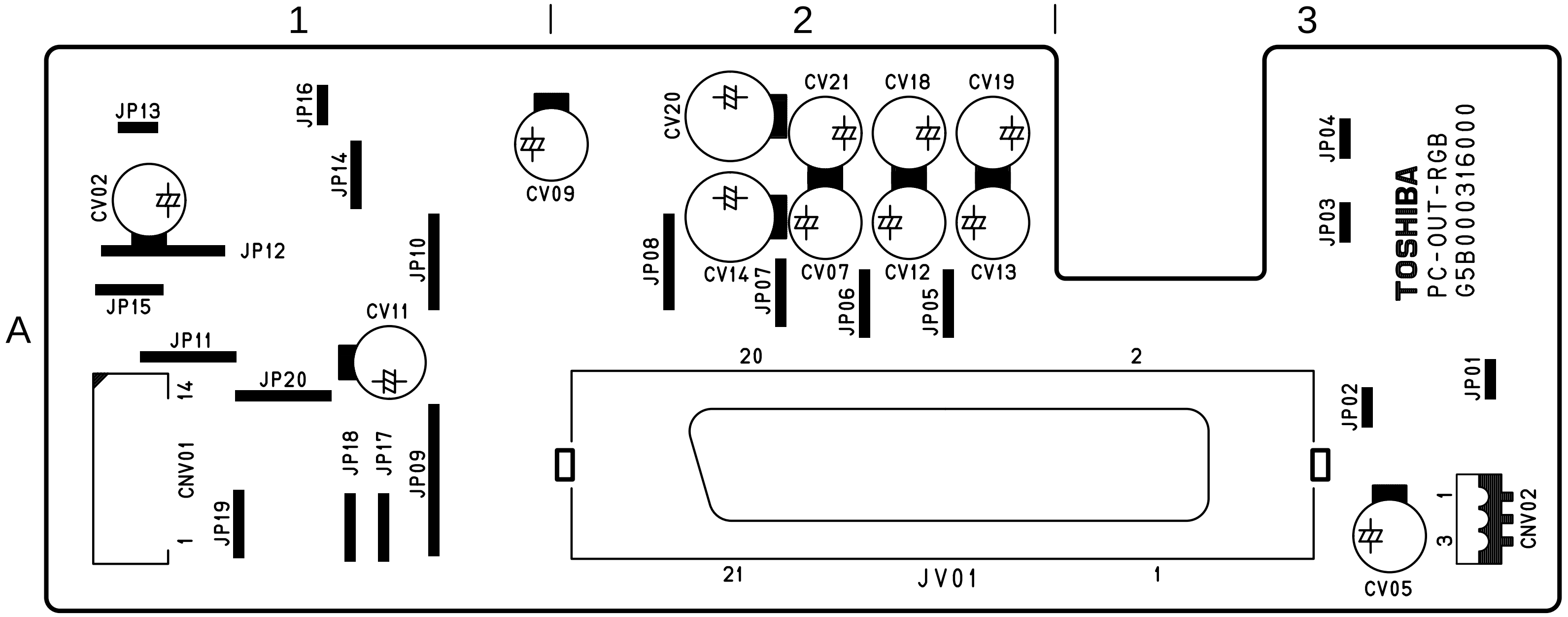

1
2
3
A
JP13
JP16
CV02
JP14
JP12
JP10
JP15
CV09
CV20
CV21
CV18
CV19
JP08
CV14
CV07
CV12
CV13
JP07
JP06
JP05
JP04
JP03
TOSHIBA
PC-OUT-RGB
G5B000316000
CV11
JP11
JP20
14
CNV01
1
JP19
JP18
JP17
JP09
20
2
21
JV01
1
JP02
JP01
1
3
CNV02
CV05

Fig. 3-6-10 EU09 Output-RGB PC Board (Top side)

Part No.	Loca-tion	Part No.	Loca-tion
CNV01	A1	JP04	A3
CNV02	A3	JP05	A2
CV02	A1	JP06	A2
CV05	A3	JP07	A2
CV07	A2	JP08	A2
CV09	A2	JP09	A1
CV11	A1	JP10	A1
CV12	A2	JP11	A1
CV13	A2	JP12	A1
CV14	A2	JP13	A1
CV18	A2	JP14	A1
CV19	A2	JP15	A1
CV20	A2	JP16	A1
CV21	A2	JP17	A1
JP01	A3	JP18	A1
JP02	A3	JP19	A1
JP03	A3	JP20	A1
		JV01	A2

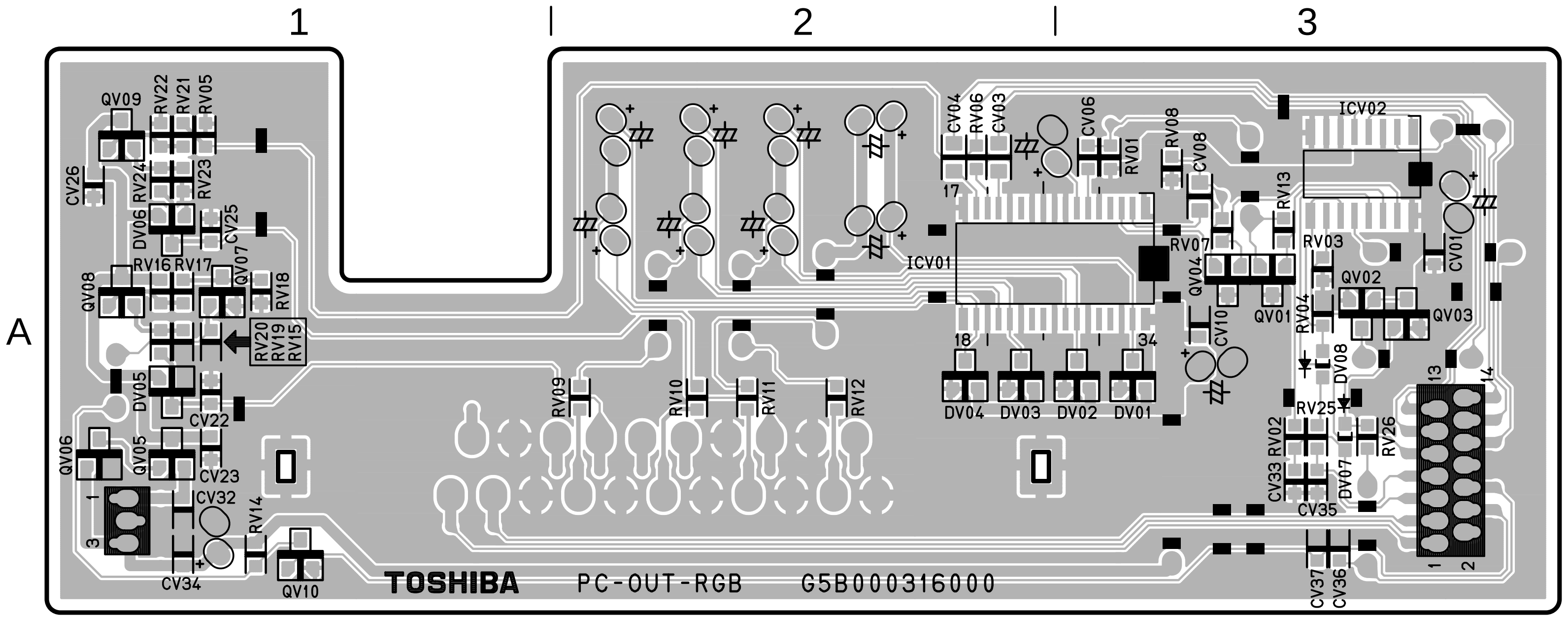
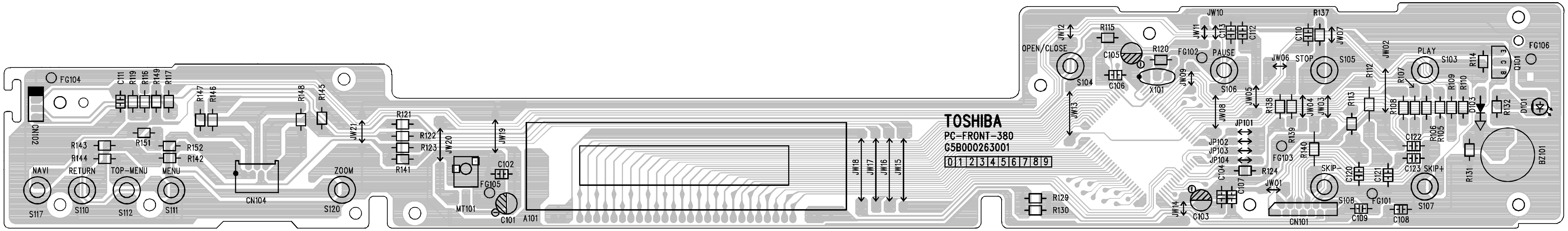

1
2
3
A
QV09
RV22
RV21
RV05
CV26
RV24
RV23
DV06
CV25
QV08
RV16
RV17
QV07
RV18
RV20
RV19
RV15
DV05
CV22
QV06
QV05
CV23
CV32
RV14
CV34
QV10
TOSHIBA
PC-OUT-RGB
G5B000316000
RV09
RV10
RV11
RV12
CV04
RV06
CV03
CV06
RV01
RV08
CV08
17
ICV01
RV07
QV04
18
34
CV10
DV04
DV03
DV02
DV01
ICV02
RV13
RV03
QV01
QV02
QV03
CV01
RV04
DV08
RV25
RV02
RV26
CV33
DV07
CV35
CV37
CV36
13
14
1
2

Fig. 3-6-11 EU09 Output-RGB PC Board (Bottom side)

Part No.	Loca-tion	Part No.	Loca-tion
CV01	A3	QV06	A1
CV03	A2	QV07	A1
CV04	A2	QV08	A1
CV06	A3	QV09	A1
CV08	A3	QV10	A1
CV10	A3	RV01	A3
CV22	A1	RV02	A3
CV23	A1	RV03	A3
CV25	A1	RV04	A3
CV26	A1	RV05	A1
CV32	A1	RV06	A2
CV33	A3	RV07	A3
CV34	A1	RV08	A3
CV35	A3	RV09	A2
CV36	A3	RV10	A2
CV37	A3	RV11	A2
DV01	A3	RV12	A2
DV02	A3	RV13	A3
DV03	A2	RV14	A1
DV04	A2	RV15	A1
DV05	A1	RV16	A1
DV06	A1	RV17	A1
DV07	A3	RV18	A1
DV08	A3	RV19	A1
ICV01	A2	RV20	A1
ICV02	A3	RV21	A1
QV01	A3	RV22	A1
QV02	A3	RV23	A1
QV03	A3	RV24	A1
QV04	A3	RV25	A3
QV05	A1	RV26	A3

6-6. Front Display PC Board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PC-FRONT-380
G5B000263001
0 1 2 3 4 5 6 7 8 9
NAVI
RETURN
TOP-MENU
MENU
ZOOM
OPEN/CLOSE
PAUSE
STOP
PLAY
SKIP-
SKIP+
CN101
CN102
CN104
A101
MT101
BZ101
X101

Fig. 3-6-12 EU03 Front Display PC Board (Top Side)

Part No.	Loca-tion	Part No.	Loca-tion	Part No.	Loca-tion	Part No.	Loca-tion	Part No.	Loca-tion	Part No.	Loca-tion
A101	C4	C123	C10	JW03	B9	JW21	B3	R122	B3	R148	B3
BZ101	B10	CN101	C9	JW04	B9	MT101	C4	R123	B3	R149	B2
C101	C4	CN102	B1	JW05	B9	Q101	B10	R124	C9	R151	B2
C102	C4	CN104	C2	JW06	B9	R105	B10	R129	C7	R152	B2
C103	C8	D101	B10	JW07	B9	R106	B10	R130	C7	S103	B10
C104	C8	D103	B10	JW08	B8	R107	B9	R131	C10	S104	B8
C105	B8	FG101	C9	JW09	B8	R108	B9	R132	B10	S105	B9
C106	B8	FG102	B8	JW10	B8	R109	B10	R137	B9	S106	B8
C107	C8	FG103	C9	JW11	B8	R110	B10	R138	B9	S107	C10
C108	C9	FG104	B1	JW12	B7	R112	B9	R139	B9	S108	C9
C109	C9	FG105	C4	JW13	B7	R113	B9	R140	B9	S110	C1
C110	B9	FG106	B10	JW14	C8	R114	B10	R141	C3	S111	C2
C111	B2	JP101	B8	JW15	C6	R115	B8	R142	C2	S112	C2
C112	B9	JP102	B8	JW16	C6	R116	B2	R143	B1	S117	C1
C113	B8	JP103	B8	JW17	C6	R117	B2	R144	C1	S120	C3
C120	C9	JP104	C8	JW18	C6	R119	B2	R145	B3	X101	B8
C121	C9	JW01	C9	JW19	B4	R120	B8	R146	B2		
C122	B10	JW02	B9	JW20	B4	R121	B3	R147	B2		

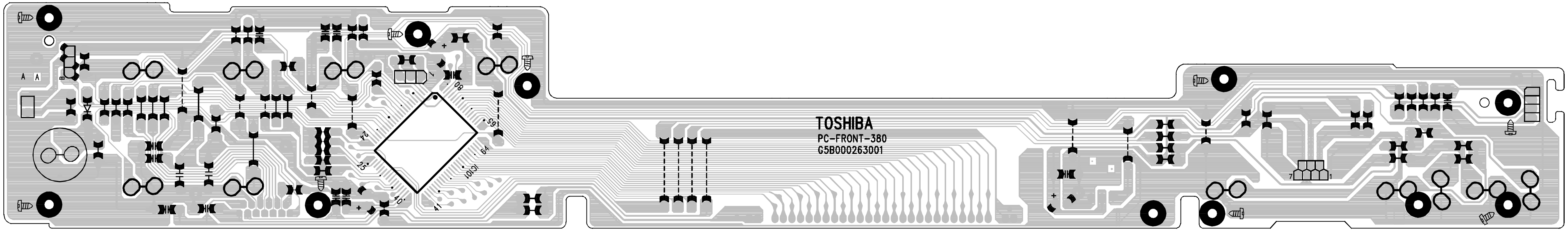
TOSHIBA
PC-FRONT-380
G5B000263001
IC101

Fig. 3-6-13 EU03 Front Display PC Board (Bottom Side)

Part No.	Loca-tion
IC101	F4

TOSHIBA CORPORATION
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